LATE HOLOCENE CLIMATE-FLOOD RELATIONSHIPS ON THE LOWER OHIO RIVER

Harvie Jason Pollard

Submitted to the faculty of the University Graduate School
in partial fulfillment of the requirements
for the degree
Master of Science
in the Department of Earth Sciences,
Indiana University

August 2020

Accepted by the Graduate Faculty of Indiana University, in partial fulfillment of the requirements for the degree of Master of Science.

Master's Thesis Committee

_____

Broxton W. Bird, PhD, Chair

_____

Kathy Licht, PhD

_____

Pierre-Andre Jacinthe, PhD

DEDICATION

This work is dedicated to my loving family. To my beautiful forever Danika, you are my rock and my support. I cannot thank you enough for all you do. To Levi the best son anyone could ever ask for. Your maturity, intelligence, perseverance and determination are one of a kind and I am very proud and in awe of you. Finally, to the best friends and source of emotional support, Honey and Emmitt, one of a kind Puppers.

ACKNOWLEDGEMENT

I would like to acknowledge the following;

Broxton W. Bird, PhD, for your inexhaustible amount of knowledge and patience, for being an outstanding advisor and willing to provide guidance no matter the circumstances, I thank you sir.

Kathy Licht, PhD and Pierre-Andre Jacinthe, PhD for agreeing to be part of my committee and giving valuable advice and support when needed.

The Geological Society of America for the grant money used to fund this project.

Derek Gibson and Cameron Nealy for all your help and support in the field and in the lab, without you nothing would have gotten done.

Indiana University Purdue University Indianapolis Department of Earth Sciences for allow me the opportunity to continue my education.

Harvie Jason Pollard

LATE HOLOCENE CLIMATE FLOOD RELATIONSHIPS ON THE LOWER OHIO RIVER

The frequency and magnitude of flooding events on the Lower Ohio River and their relationship with climate are investigated using a ca. 2000-year-long sediment core collected from Goose Pond, Indiana. Using high-resolution radiocarbon dating (n = 25), late Holocene sedimentation rates were calculated for Goose Pond. Changes in sediment accumulation rates are attributed to variations in the frequency of flooding events on the lower Ohio River. Elevated sedimentation rates immediately following the formation of Goose Pond ca. 2000 years ago persisted until 680 CE, suggesting regular flooding during this interval. Between 680 and 1190 CE, sedimentation rates decreased dramatically and abruptly, indicating a reduction in flood frequencies. Sedimentation rates subsequently increased again at ca. 1190 CE and persisted at a similar level until 1850 CE, suggesting that flooding frequencies increased during a time that overlapped with the Little Ice Age (LIA; 1250-1850 CE). Sedimentation rates increased again at ca. 1850 CE, reaching a 2000-year high (3.33 cm/yr) at 1970 CE and indicating a period characterized by frequent flooding and landscape erosion. The flood record from Goose Pond shows similarities with other Lower Ohio River flood reconstructions from Avery Lake, IL, and Hovey Lake, IN, suggesting the Goose Pond record reflects the regional flooding history for the lower Ohio River. Comparison with paleoclimate records from the Midwest supports the idea that lower Ohio River flood frequencies prior to Euro-American occupation in the 1800s increased during times when winter precipitation predominated as a result of atmospheric circulation changes resembling the Pacific North

American mode (PNA) that appear to have been driven in part by the Pacific Decadal Oscillation (PDO). Following Euro-American land clearance, lower Ohio River flooding increased dramatically despite a decrease in winter precipitation. This likely reflects an increase in runoff and erosion as a result of deforestation and landscape conversion to intensive row crop agriculture. As climate continues to change and the Midwestern United States continues to see an increase in precipitation, both winter and summer, flood frequencies could be expected to increase still further.

Broxton W. Bird, PhD, Chair

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Chapter 1 Introduction

The frequency and duration of flooding events in the Midwestern United States (US) has significantly increased over the last three decades in response to an ca. 30% increase in mean annual precipitation and more frequent intense rainstorm events (Andresen et al., 2012; Mallakpour and Villarini, 2015; Melillo, 2014; Wuebbles and Hayhoe, 2004). As a consequence, infrastructure, agriculture, and communities in proximity to fluvial systems have experienced considerable damage that in many cases has ranged from millions to billions of dollars (Smith and Katz, 2013). In addition to the economic impacts, food security and production are threatened by the increase in Midwestern flooding as this region is one of the world's largest agricultural centers and the global leader in corn, wheat, and soybean production and exportation (IPCC, 2007; Melillo, 2014).

Despite the myriad of threats posed by flooding in the Midwestern US, relatively little is known about the long-term relationships between climate and flooding in this region. This is in part because instrumental records of climate and fluvial processes rarely span more than a few decades and those that do exist are poorly distributed geographically. In addition, the existing fluvial dynamics records all capture trends and variability that occurred within the context of a landscape that has been significantly modified by anthropogenic processes, meaning that any climate-flood relationships drawn by the interrogation of these data do not reflect natural climate-flood relationships. Understanding fluvial responses to changing climatic conditions, and reorganizations in precipitation regimes in particular, is important in order to better understand and predict the affects that continued climatic changes will have on fluvial systems and their

surrounding landscapes. In order to accomplish this, however, both the natural climate-flood dynamic and the ways in which it was altered by anthropogenic land use need to be quantified.

There have been several studies on the lower Ohio River (LOR) related to sediment accumulation, floodplain construction and their relationships to climate and flooding. Although limited in number, some research investigating climate-flood relationships in the Midwest has been conducted in recent years (Alexander and Nunnally, 1972; Bird et al., 2019; Knox, 2000, 2006). Most recently, research at Avery Lake on the Black Bottom in southern Illinois and Hovey Lake in southern Indiana produced a flooding reconstructions for the LOR based on variations in sediment accumulation rates constrained with ^{14}C dates (Bird et al., 2019). Both Avery and Hovey lakes showed generally similar sedimentation patterns, with slow accumulation before 1000 CE, a rapid increase in accumulation between 1100 and 1700 CE and then a remarkably rapid increase to the present (Bird et al., 2019). The sediment accumulation patterns prior to ca. 1800 CE were attributed to changes in LOR flooding as a result of variations in the seasonality of precipitation due to the Pacific North American Teleconnection (PNA), the Pacific Decadal Oscillation (PDO), and Northern Hemisphere temperatures. Specifically, increased LOR flooding accompanied increased boreal winter precipitation from the Pacific and Arctic under positive (+) PNA and PDO conditions, whereas LOR flooding was reduced when boreal warm-season precipitation from the Gulf of Mexico predominated under negative (-) PNA and PDO conditions. Notably, these natural climate-flood relationships were altered after ca. 1800 CE, whereby the frequency, and possibly magnitude, of flooding increased to the present despite a shift to

predominantly warm-season precipitation conditions, which Bird et al. (2019) attributed to an increase in runoff as a result of extensive land clearance in the Ohio River watershed.

The above results demonstrate both the sensitivity of the Ohio River system to changes in the seasonality of precipitation and anthropogenic land use changes. While suggestive, the regional applicability of the Avery and Hovey lake results need to be tested with additional well-dated records from elsewhere from the LOR system. To test the climate-land-use-flooding relationships suggested for the LOR, this research presents

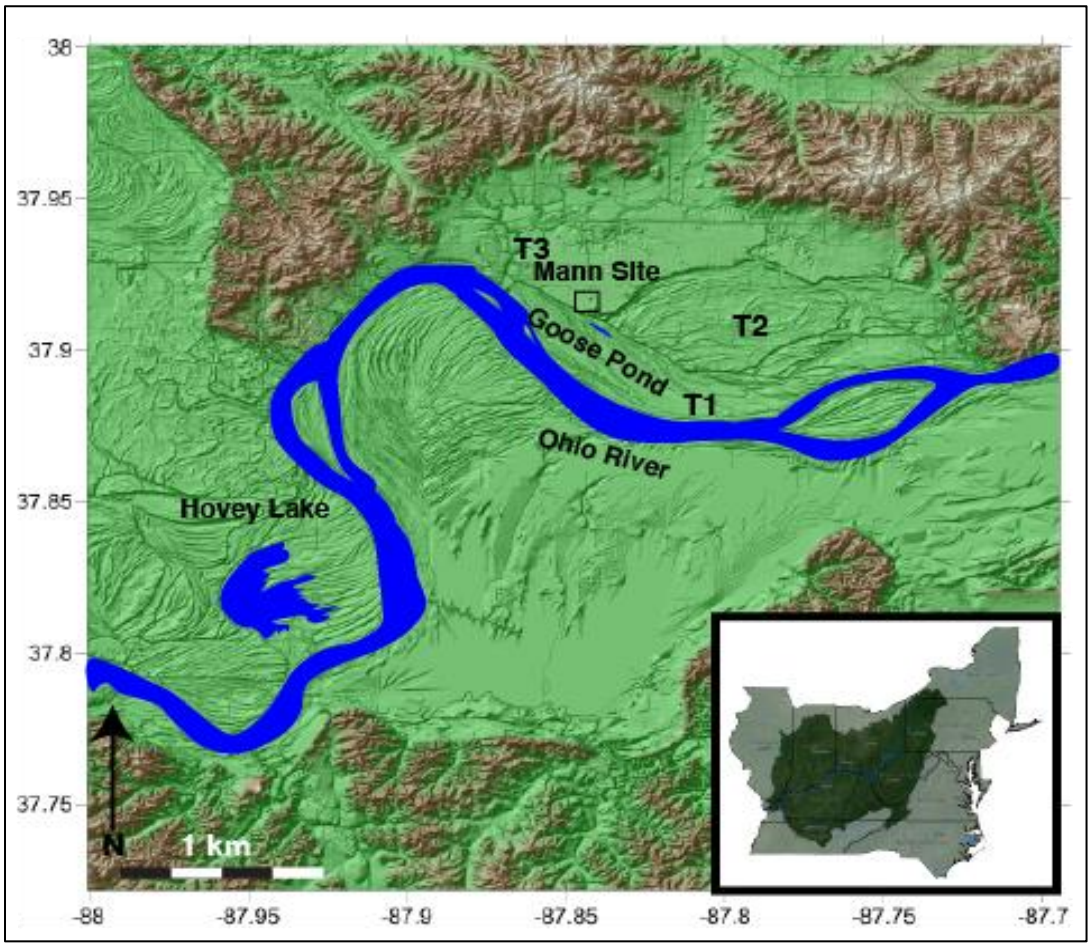

Figure 1 Regional study area: Goose Pond area map indicating the lake in relation to the Lower Ohio River and Hovey Lake to the Southwest. Also shown on the map are the three terraces associated with the floodplain, the Mann Native American site and an inset map indicating the geographical location of the study area in relation to the Ohio River Watershed.

a new, well-dated, high-resolution floodplain lake record of flood driven sedimentation

on the LOR from Goose Pond, southern Indiana. Specifically, this research tests the hypotheses that greater winter precipitation during +PNA and PDO modes increased the frequency of flooding on the Lower Ohio River and that these climate-flood relationships were fundamentally altered by land use changes, and deforestation in particular, during the 1800 and 1900s. These hypotheses are tested by comparing sediment accumulation and lithic abundance records from Goose Pond with previously published flood records from Avery and Hovey lakes, and with $\delta^{18}O$ and lithic abundance records from Martin Lake, the latter of which are used as indicators of changes in the source and seasonality of precipitation in the mid-continental United States.

Chapter 2 Study Area and Fluvial Setting

2.1 Lower Ohio River

The LOR floodplain by Goose Pond (Fig. 1) has a long and complex geomorphic history as reflected by several different terraces that are in close proximity to Goose Pond (37.90666667, -87.83888889. Elevation: 106m asl) (Counts, 2013; Counts et al., 2015). The modern floodplain (T1) was previously dated to have formed at 5,500 ka (kilo annum) whereas terraces 2 and 3 were dated to 14,800 ka and 18,900 ka, respectively (Counts, 2013; Counts et al., 2015).

The floodplain surrounding Goose Pond is characterized by ridge and swale topography, which is interpreted to have formed during the southward and westward migration of the Ohio River. Ridge and swale topography is understood to have been formed by the stream producing coarse point bar and levee sediments (the ridge) that were subsequently overlain by finer grained over-bank deposits (Alexander and Eyton, 1973; Alexander and Nunnally, 1972; Alexander and Prior, 1971). Landscape models suggest that the ridges form from lengthening of lateral channel bars that eventually connect with the opposite end of the point bar, forming swale lakes flanked by natural levee ridges (Stafford, 2004). These fluvial geomorphic features are common along the LOR and are subject to controls that are placed on them including changes in climate, discharge, sediment loads and anthropogenic changes to the surrounding land surfaces.

2.2 Goose Pond

Goose Pond is a small (0.86 x 0.07 km; 0.04 km^2) swale lake on an 18.42 km^2 convex shaped NW/SE trending portion of the LOR floodplain near Mt. Vernon, IN.

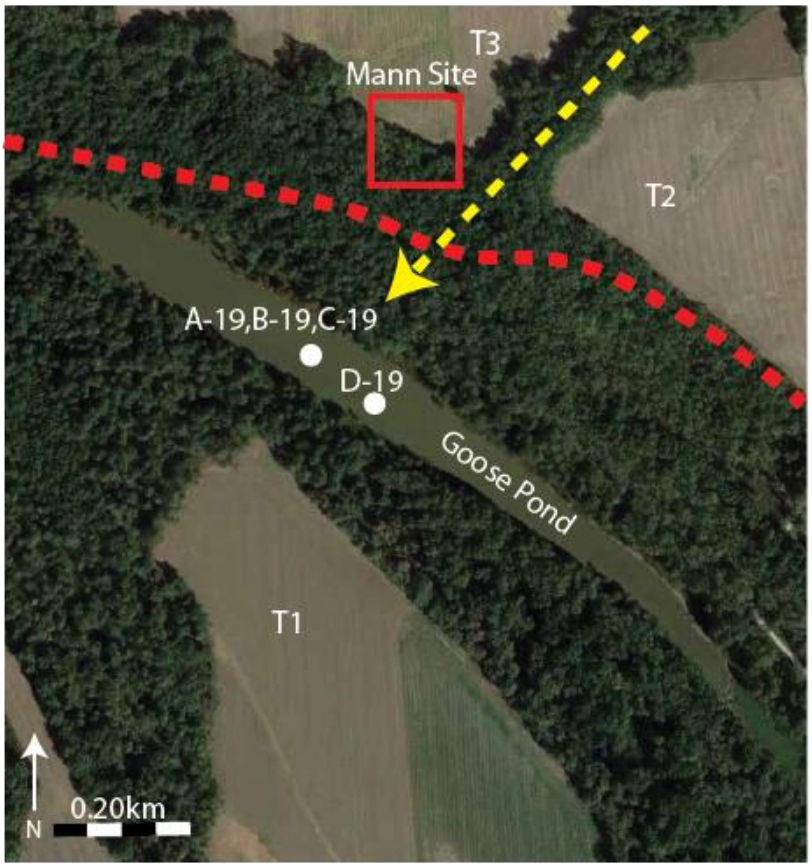

Figure 2 Goose Pond study site. The red dashed line shows the separation of terrace one from terrace two and three while the yellow dashed line separates terraces two and three. The yellow dashed line also indicates a possible drainage into the lower floodplain from the upper terraces. The white dots show the sample sites on the lake.

(Fig. 1). Goose Pond is situated at 106 meters above sea level (asl), which is notably the same elevation of the Ohio River along this reach (Fig. 8A). As such, Goose Pond is highly sensitive to flooding since only small increases in Ohio River levels are required to inundate the lake.

The orientation of Goose Pond relative to the Ohio River during the pond's construction was such that the river channel was parallel to the lake. As the channel migrated away from the lake over time, the angle of the channel changed with it, becoming more oblique. The visible orientations of past channel and levee deposits illustrate the changing geometry of the stream channel as it migrated to the South and

West (Fig 8A). An early Native American site (Mann Site) associated with the Crab Orchard culture is in close proximity to Goose Pond (Counts et al., 2015).

2.3 Regional Climate

Climate in the Ohio River Valley is influenced by the interactions of air masses originating from the Gulf of Mexico, Arctic, and Pacific Ocean (IPCC., 2007; Melillo, 2014; Rasmussen et al., 2007; Stafford and Creasman, 2002; Wuebbles and Hayhoe, 2004). Today, the regional climate is characterized by strong seasonality, with peak temperatures in late July and early August (avg. 19.9 ^{o}C) and minimum temperatures in late January to early February (avg. -5.2 ^{o}C). Precipitation is also strongly seasonal with a warm-season maximum (April through October; 33 cm.) and cold-season minimum (November through March; 13.1 cm) (Andresen et al., 2012).

Although most strongly expressed during the winter months, weather patterns in the Ohio River Valley are strongly influenced by the Pacific-North American teleconnection (PNA) throughout the year (Bird et al., 2019; Bird et al., 2017; Coleman and Rogers, 2003; Leathers, 1991; Leathers et al., 1991; Liu et al., 2014a; Liu et al., 2014b). The PNA is a climatic teleconnection characterized by atmospheric pressure oscillations between the middle and high northern latitudes that influence the direction and strength of atmospheric circulation, including the position and shape of the polar front jet stream (Leathers 1991). These patterns affect temperatures and moisture variability across much of the United States, but are strongest in the Ohio River Valley (Leathers, 1991; Leathers et al., 1991; Coleman and Rogers, 2003). A positive (+) PNA index is associated with a dryer climate and less precipitation and below normal winter

precipitation across the Midwest while a negative (-) PNA would mean a wetter climate and more winter precipitation. During a (+) PNA, the jet stream is more meridional, which increases the frequency of air mass incursions from the Arctic and Pacific Northwest. During (-) PNA condition, the jet stream is more zonal, which increases clockwise atmospheric circulation over the eastern US and leads to more frequent incursion of warm, moisture laden air masses from the Gulf of Mexico into the midcontinental US (Bird et al., 2019; Bird et al., 2017; Coleman and Rogers, 2003; Liu et al., 2014a; Liu et al., 2014b). The +PNA is indicative of dry, more winter type precipitation while a -PNA is indicative of wetter, summer precipitation.

On inter-annual timescales, the El Niño-Southern Oscillation (ENSO) and its influence on PNA-like atmospheric circulation plays a large role in Midwestern climate variability. ENSO is a quasi-periodic variation in atmospheric pressure, sea surface temperature gradients, and wind anomalies over the tropical Pacific Ocean (Ropelewski and Halpert, 1986). This pattern produces a reduction in the thermal gradient of sea surface temperatures (SST) across the tropical Pacific, which displaces convection in the western tropical Pacific Ocean to the central and eastern tropical Pacific Ocean. This pattern affects the climate of much of the tropics and mid-latitudes and as such can influence climates around the world (Leathers et al., 1991). During normal conditions, trade winds flow from east to west near the Equator, driving upwelling along the west coast of the Americas that produces cold SST in the eastern tropical Pacific. During El Niño conditions, the easterly trade winds weaken, resulting in reduced upwelling and warmer SST in the eastern tropical Pacific and cooling in the western tropical Pacific. La Niña conditions in contrast are associated with stronger trade winds, stronger upwelling

and colder SST than normal conditions. These patterns can last several months and occur every two to seven years with varied intensities (Ropelewski and Halpert, 1986). Extremes of this pattern can cause extreme weather (such as floods and droughts) in many regions and also affect both the PNA (Liu et al., 2014; Leathers, 1991; Leathers et al., 1991). During positive phases of the ENSO (i.e., El Niño events) there are milder than average temperatures across the Midwest and dryer seasons. During negative phases of ENSO (La Niña events) the Midwest receives increased precipitation and above normal temperatures.

On decadal and longer timescales, the Pacific Decadal Oscillation (PDO) plays an important role in Midwestern climate variability (Fig. 7G). The PDO is a decadal-scale pattern of ENSO-like ocean-atmosphere climate variability centered over the mid-latitude Pacific basin (Mann et al., 2009). This climate pattern affects marine and continental surface air temperatures along the west coast of North America. The PDO influences the zonal or meridional flows of the jet stream and it is through this that influence that it can force PNA variability in the midlatitudes and contributes to summer and winter precipitation events across North America (Stafford and Creasman, 2002).

Previous work has suggested that changes in PDO- and PNA-like mean states played an important role in driving variations in the frequency, and possibly magnitude, of flooding events in the Midwestern US (Bird et al., 2019). Specifically, under + PDO and PNA conditions that persisted for centuries, winter precipitation increased while warm-season rainfall decreased (Fig. 7E), which resulted in more regular spring flooding and increased sediment accumulation in floodplain swale lakes on the LOR (Bird et al., 2019; Bird et al., 2017). Under –PNA- and –PDO-like conditions, warm-season rainfall

derived from the Gulf of Mexico increased while winter precipitation from the Artic and Pacific Northwest decreased, which resulted in reduced LOR flood frequencies. The decrease in flooding frequencies during periods characterized by warm-season precipitation was attributed to the spatiotemporal differences in runoff associated with precipitation received during different seasons (Fig. 7E). Specifically, warm-season precipitation in the form of rainstorm events are derived from frontal systems that only produce precipitation over small sub-regions of the Ohio River watershed. Because this precipitation is delivered during the warm growing season, much of the rainfall is utilized by plants or infiltrates into the subsurface, reducing runoff. In contract, spring snow melt occurs at a similar time across the entire Ohio River watershed. As well, the spring melt typically occurs before plants are able to utilize the water and much of the ground is still frozen. Together, these factors serve to generate large floods. During times in the past when winter precipitation predominated, large floods on the LOR would have been more likely. In contrast, floods would have been less frequent during periods in the past dominated by summer precipitation (Fig. 7E) (Knox, 2000).

Importantly, these climate-flood relationships appear to have broken down as a result of land clearance in the 1800s, which is hypothesized to have increased runoff and made the LOR system susceptible to flooding even under conditions predominated by warm-season precipitation. These climate-flood relationships are based on data primarily from one site, however, and hence additional paleo-flood records are needed to corroborate the hypothesized relationships. Doing so is important, in part because mean annual precipitation is predicted to in increase by as much as 30 to 40% (IPCC, 2007), which would serve to exacerbate already dangerous flooding in the Midwest.

Chapter 3 Methods

3.1 Sample Collection

Two continuous, 10-meter-long sediment cores (A-19 and B-19) were collected from Goose Pond (Fig. 2) in July of 2019 using a modified Livingstone piston corer driven by an electric winch coring tower system mounted on a floating raft (Livingstone, 1955). One-meter-long Livingstone cores were offset by 50 cm between A-19 and B-19 to ensure complete sediment recovery. Two one-meter-long surface cores capturing the sediment-water interface were collected using a modified surface piston corer at two different sites, with one collected adjacent to A-19 and B-19 (C-19) and the other to the southeast of the primary core site (D-19) (Fig. 2). All cores were transported to the Paleoclimatology and Sedimentology Laboratory at Indiana University-Purdue University, Indianapolis (IUPUI) and stored at 4˚C prior to analysis. A composite sediment core measuring 994 cm was constructed by matching distinct stratigraphic units (Fig. 4) and sedimentological measurements (e.g., magnetic susceptibility, total organic matter, and geochemistry from X-ray fluorescence).

3.2 Sediment Core Processing, Dry Bulk Density, Loss on Ignition, and Magnetic Susceptibility

Sediment cores were split into work and archive halves, imaged using a Geotek Multi-Sensor Core Logger, described, and volumetrically sub-sampled (1 cm^3) at 1-cm intervals for dry bulk density (BD; g cm^{-3}) and loss-on-ignition (LOI) analysis for total organic matter (%TOM) and carbonate (%TC). All samples for LOI were dried for 24 hours at 60 ºC and reweighed to determine dry bulk density (g/cm^3). TOM and TC

abundances were determined by LOI after combustion at 550 ºC (4 hr) and 1000 ºC (2 hr), respectively (Heiri et al., 2001). The abundance of residual matter (lithics + biogenic silica) was calculated by subtracting %TOM from 100 % (%TC was not included because no carbonate was present). Magnetic susceptibility (MS) was measured on room temperature cores using a Geotek Multi-Sensor Core Logger at IUPUI and is reported in SI units $x10^{-5}$.

3.3 Age Control

Age control for the Goose Pond flood record was established by accelerator mass spectrometry (AMS) radiocarbon (^{14}C) analysis of 25 samples at the University of California, Irvine (UCI), Keck AMS Laboratory (Table 1).

Table 1: Radiocarbon Dates from Goose Pond.

UCIAMS #	**Core**	**Drive**	**Composite Depth**	**Fraction Modern**	**±**	**^{14}C age (BP)**	**±**	**Median cal age B.P.**
222098	A19	1	62	1.4084	0.0090	Modern	0	-24
222099	A19	2	141	0.9115	0.0016	745	15	680
222100	A19	2	130	0.9667	0.0016	270	15	306
222101	A19	3	118	1.0555	0.0017	Modern	0	-7
222102	A19	4	282	0.9801	0.0018	160	15	190
222103	A19	4	297	0.9772	0.0016	185	15	180
222104	A19	4	306	0.9817	0.0016	150	15	188
222105	A19	4	286	0.9748	0.0044	205	40	182

222106	A19	5	353	0.9787	0.0016	175	15	182
222107	A19	6	428	0.9468	0.0015	440	15	506
222108	A19	6	461	0.9247	0.0015	630	15	593
222109	A19	7	528	0.9033	0.0016	815	15	717
222110	A19	7	568	0.8356	0.0014	1445	15	1332
222111	A19	7	594	0.8283	0.0013	1515	15	1393
222112	A19	8	621	0.8295	0.0015	1500	15	1380
222113	A19	8	661	0.8238	0.0014	1555	15	1474
222114	A19	8	698	0.8205	0.0014	1590	15	1459
222115	A19	9	725	0.8214	0.0013	1580	15	1464
222116	A19	9	745	0.6413	0.0082	3570	110	3871
222117	A19	10	819	0.8102	0.0035	1690	35	1596
222118	A19	10	844	0.8095	0.0014	1700	15	1595
222119	A19	10	886	0.8071	0.0014	1720	15	1623
222120	A19	11	945	0.7377	0.0013	2445	15	2488
222121	A19	11	961	0.8049	0.0014	1745	15	1659
222122	A19	11	979	0.7821	0.0013	1975	15	1920

Charcoal and macroscopic terrestrial organic material > 63 µm was picked from a wet sieve after a brief (1 to 5 min) disaggregation in a 7 % hydrogen peroxide solution. Samples were physically cleaned and chemically pretreated following acid-base-acid protocols (Abbott and Stafford, 1996; Brock et al., 2010). Radiocarbon ages were calibrated to CE using a Bayesian radiocarbon chronology package (Bchron) in R-studio and an Intcal13 calibration curve (Reimer et al., 2013). Utilizing a Bchron age model in

the R-studio program enabled a quick calibration of the radiocarbon dates that were obtained and identified from the curve that was constructed (Parnell and Parnell, 2018). Unless otherwise noted, dates in the text are referred to as being in the Common Era (CE) or before (BCE) with -69 cal yr BP equal to 2019 CE. Sediment accumulation rates above the fluvial-lacustrine transition were calculated using the *acc rate* function in Bchron (Parnell, 2016) (Fig. 3).

3.4 X-Ray Fluorescence Geochemistry

Geochemical analyses of the Goose Pond sediments were made using a handheld Olympus Innov-X Delta Pro (DPO-6000-C) X-ray fluorescence (XRF) analyzer (Bird et al., 2019; Bird et al., 2017; Boës et al., 2011; Graney et al., 1995). Titanium (Ti), zirconium (Zr), and lead (Pb) were measured using two energy beams, each with a measurement time of 30 seconds (Appendix A). Beam one had an energy of 40 Kv and beam two had an energy of 10 Kv. Pb was normalized to Ti and Zr because these latter elements are conservative and are reflective of the contribution of terrestrial material to lake systems system (Boes 2011). Therefore, by dividing Pb by Ti or Zr, you remove trends related to the input of terrestrial sources of Pb. Peaks in Pb/Ti or Pb/Zr therefore reflect excess Pb deposited in the lake that is likely anthropogenic in origin. Results were recorded as counts per second and converted to percent abundance using the Olympus' proprietary software and an Olympus calibration standard.

Chapter 4 Results

4.1 Goose Pond Stratigraphy

The 994 cm composite core from Goose Pond was visually divided into a basal section between 993 and 970 cm and an upper section above 970 cm. The basal section consisted of medium to coarse sand, which is consistent with the fluvial sediment composition of modern and Holocene Lower Ohio River channel deposits (Alexander and Prior, 1971; Counts, 2013; Ray, 1974; Stafford, 2004; Stafford and Creasman, 2002).

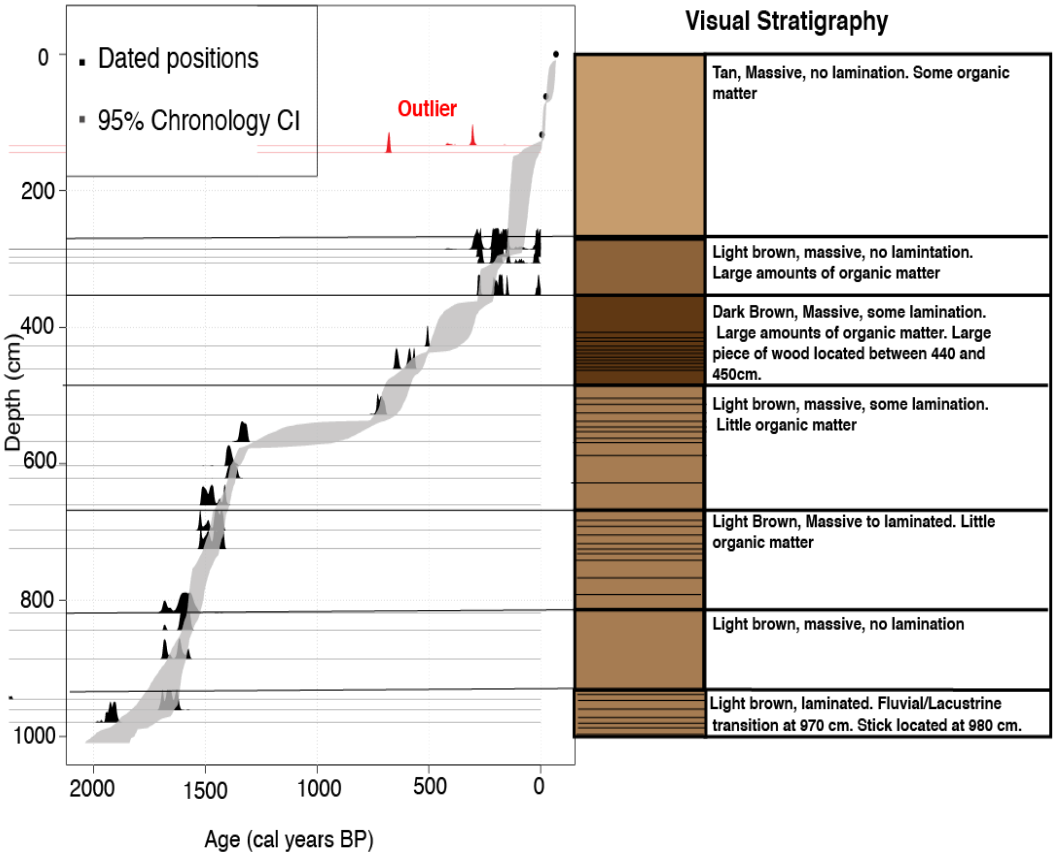

Figure 3 Goose Pond age model and Stratigraphic column: Age–depth model for Goose Pond constructed with Bacon showing the location and probability curves of dated positions (black curves and associated horizontal lines) and the 95% confidence interval (CI) range of the age model (gray shading). There are two outliers and are indicated with the red curve. Visual stratigraphy is also shown with brief descriptions.

From 970 to 960 cm, there was a transition from the coarse basal sediments to fine-grained dark brown to light brown layered sediments indicating that a lacustrine environment became the dominant depositional setting. Between 810 and 740 cm, there was another section of light brown fine-grained laminated sediment. Between 740 and 560 cm was a section of intermittent banding and laminations. At 560 cm, the sediments abruptly transitioned to very dark brown fine-grained material that was dominated by organic material and persists throughout the core until 270 cm. At 270 cm, there was an abrupt transition to light brown fine grain sediments that extended to the top of the core (Fig. 3)

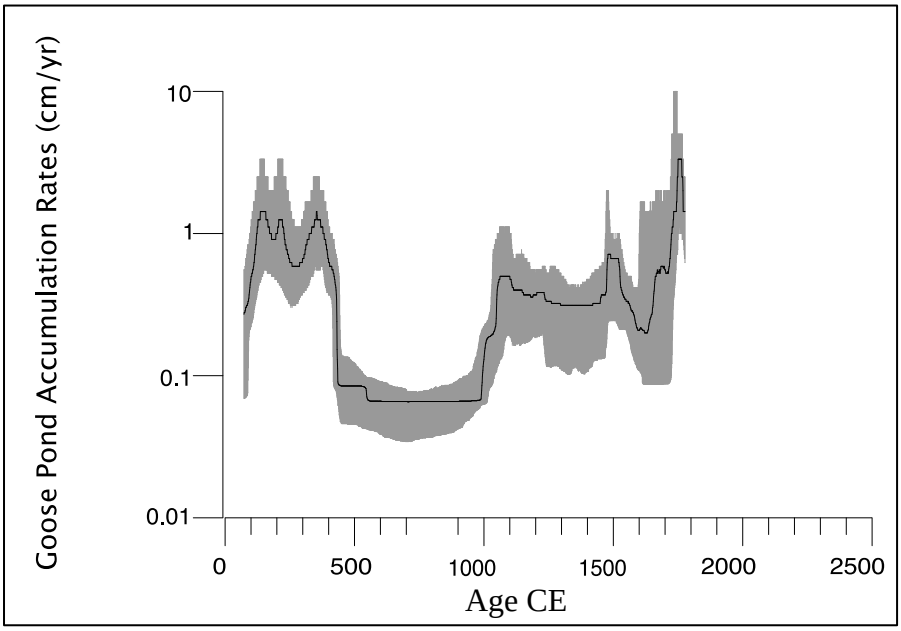

Figure 4 Goose Pond sediment accumulation: Sedimentation rate of Goose Pond showing high sedimentation rates at the beginning of the record (0) until around 630 CE, low sedimentation rates from around 630 CE to 1190 CE. Rates increase during the LIA and increase again after 1850 CE. The grey shading illustrates the error.

4.2 Chronology and Sediment Accumulation Rates

Twenty-five AMS ^{14}C samples were collected and analyzed from the Goose Pond sediment archive (Fig. 3). There is one instance at the top of the record (160-180 cm) where the samples are out of chronological order. These outliers can be explained by residual material from previous

drillings becoming incorporated in the sidewalls of the borehole and picked up during subsequent core extractions. Apart from this deviation, the samples are all in chronological order, indicating continuous and undisturbed sediment accumulation. Accumulation rates were very high (3.33 cm/yr) initially from 100 to 400 CE (Data found in Appendix C). Between 400 and 1190 CE, the sedimentation rates decrease to 0.90 cm/yr and remain quite low until after 1190, when they increase again to 1cm/yr during the LIA. After ca. 1850 CE, sedimentation rates increased abruptly and dramatically, reaching their highest levels at 1970 CE.

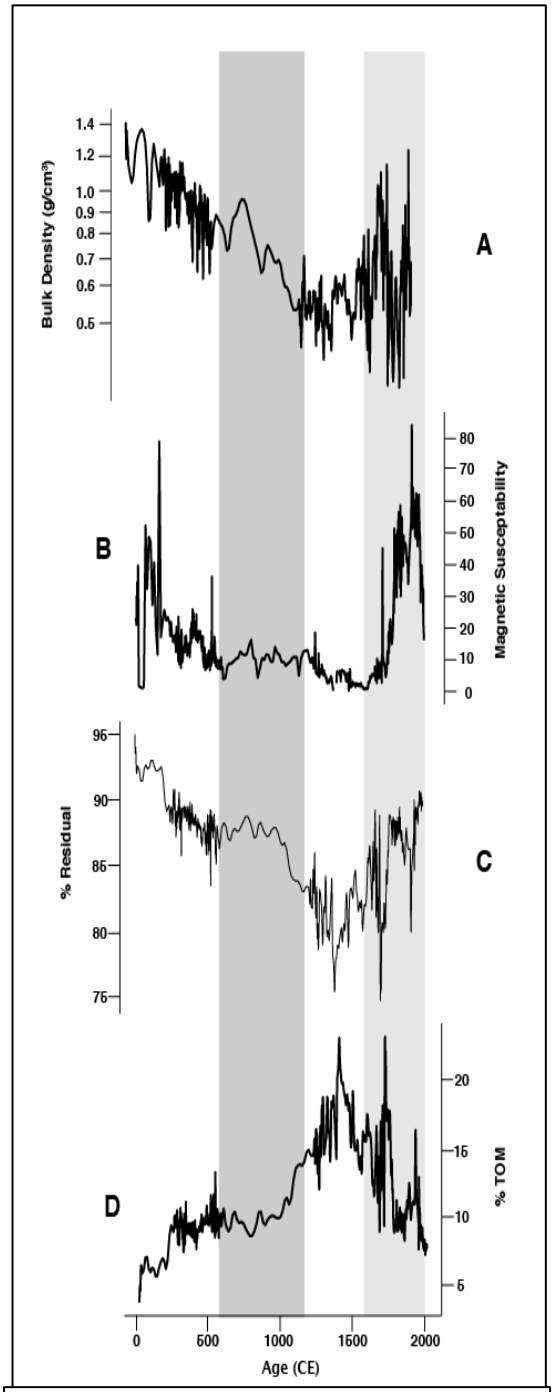

Figure 5 Dry bulk density, Magnetic susceptibility, % Residual, % TOM: A; Bulk Density plot. B; Magnetic susceptibility plot C; Percent residual plot D; Percent total organic matter. The darker grey box indicates a lull in all the plots that coincide with low sedimentation rates at Goose Pond. The lighter box correlates an increase in all plots that follows with increases of sedimentation.

4.3 Dry Bulk Density, % Total Organic Matter and % Residuals

Dry bulk density (BD) (Fig 5A) (Appendix B) decreased until approximately 1200 CE. BD was then low, but variable, until ~1700 CE. After ~1700 CE, BD increased, but with considerable variability.

Following this increase, there was a dramatic decrease in dry BD to 1970 CE (0.37 g/cm^3) followed immediately by an increase in dry BD to 2000 CE (1.23 g/cm^3). Organic matter and residual abundances closely tracked the timing of dry BD trends, with %TOM (Fig. 5D) plotting opposite of dry BD while %residual (Fig. 5C) was in phase.

4.4 Magnetic Susceptibility

Magnetic susceptibility (MS) averaged 21.19 x10^{-5} SI (Appendix B) and showed variability throughout the 2,000-year record with values ranging from 0 at the lowest point of 1595 CE and the highest point of 83.90 x10^{-5} SI at 1930 CE (Fig. 5B). Four peaks are apparent in the record with the earliest occurring at 185 CE (78.80 x10^{-5}), the next two occurring at 1730 CE (45.10 x10^{-5}) and 1850 CE, both with a value of 58.60 x10^{-5}. The final peak was at

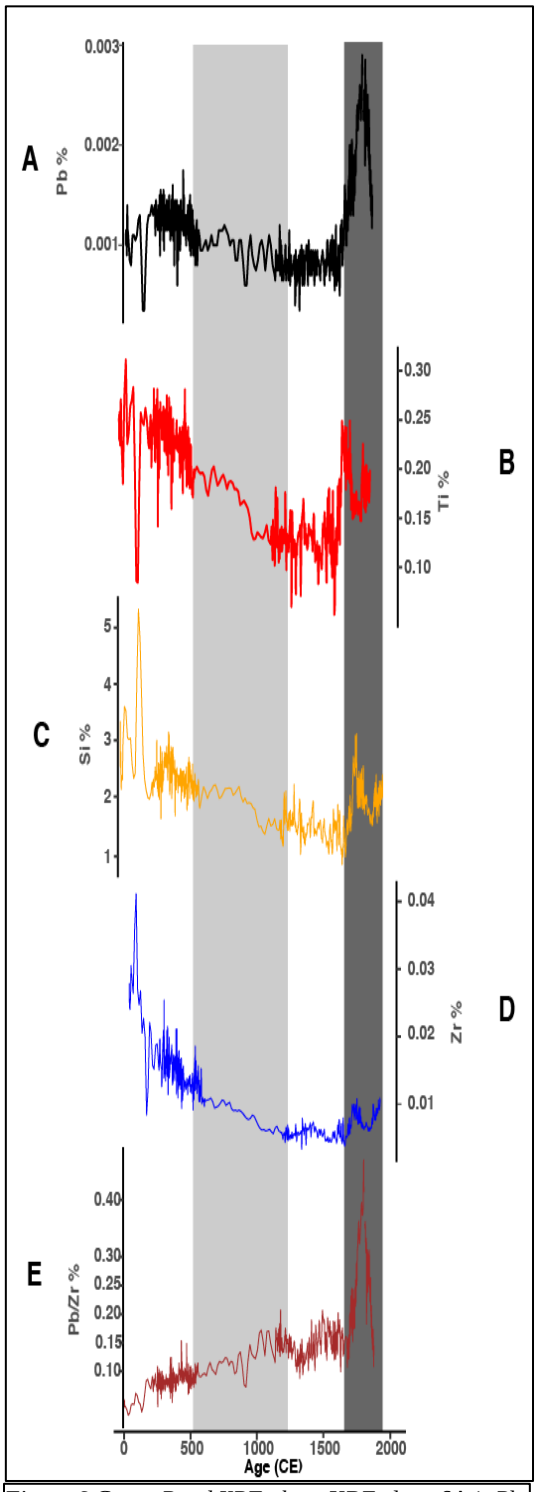

Figure 6 Goose Pond XRF plots: XRF plots. 6A is Pb plot showing a level trend until Euro-American settlements begin, 6B is Ti plot showing a decreasing trend until 1830, 6C Si plot follows the same trend as Ti, 6D is the Zr plot that has an overall decreasing trend, and 6E is the Pb/Zr ratio plot that tracks with the Pb plot.

1930 CE (83.90 $x10^{-5}$). Of note are that the latter three peaks occurred when the record began an increasing trend toward the records highest value of 83.90 $x10^{-5}$ at 1930 CE.

4.5 Geochemistry

The MS (Fig. 5B) and dry BD (Fig. 5A) trends described above generally follow the geochemical trends represented by titanium (Ti), Silicates (Si), zirconium (Zr) and lead (Pb), although with some differences. The main difference is that Ti, Si and Zr were relatively high during the early part of the record, with Ti showing the most variability throughout the record and Zr and Si trending in a similar plot to each other. Zr showed a peak between 80 CE at 412 ppm which then decreased throughout the record until leveling off to 56 ppm around 1550 CE and generally showed little variations (Fig. 6D). In contrast, Ti generally showed larger variations throughout the record, while also following a similar trend of high values 1336 ppm in the beginning of the record; began a decreasing trend until 1230 CE (1237 ppm) and stabilizing until 1760 CE where the record trended up until the modern time with a value of 1985 ppm (Fig. 6B).

Chapter 5 Discussion

5.1 Flooding and Sedimentation on the Lower Ohio River

Instrumental records show that regional flooding along the LOR typically occurs during the late winter and spring from February to May due to melting of winter precipitation (snow melt) and abundant spring rainfall (Knox 2000). Large summer storm events are becoming more frequent in the Ohio River watershed. These precipitation events produce large amounts of precipitation in a short period of time. This heavy burst of precipitation can contribute to the winter-spring floods thereby causing these flooding events to continue for longer time periods with increased sedimentation and higher frequencies (Lavers and Villarini, 2013). The increasing number of large and intense

summer storm events are also increasing the occurrence and durations of summer floods as well.

Previous research indicates that sediment accumulation on floodplains and in floodplain lakes on the LOR is directly related to flooding events (Alexander and Prior, 1971; Counts, 2013; Counts et al., 2015). Specifically, frequent flooding is equated with increased sediment accumulation rates and vice versa for periods of reduced flooding (Bird et al., 2019). Using this modern relationship between flood occurrence and sediment accumulation in flood plain lakes Bird et al. (1029) produced a

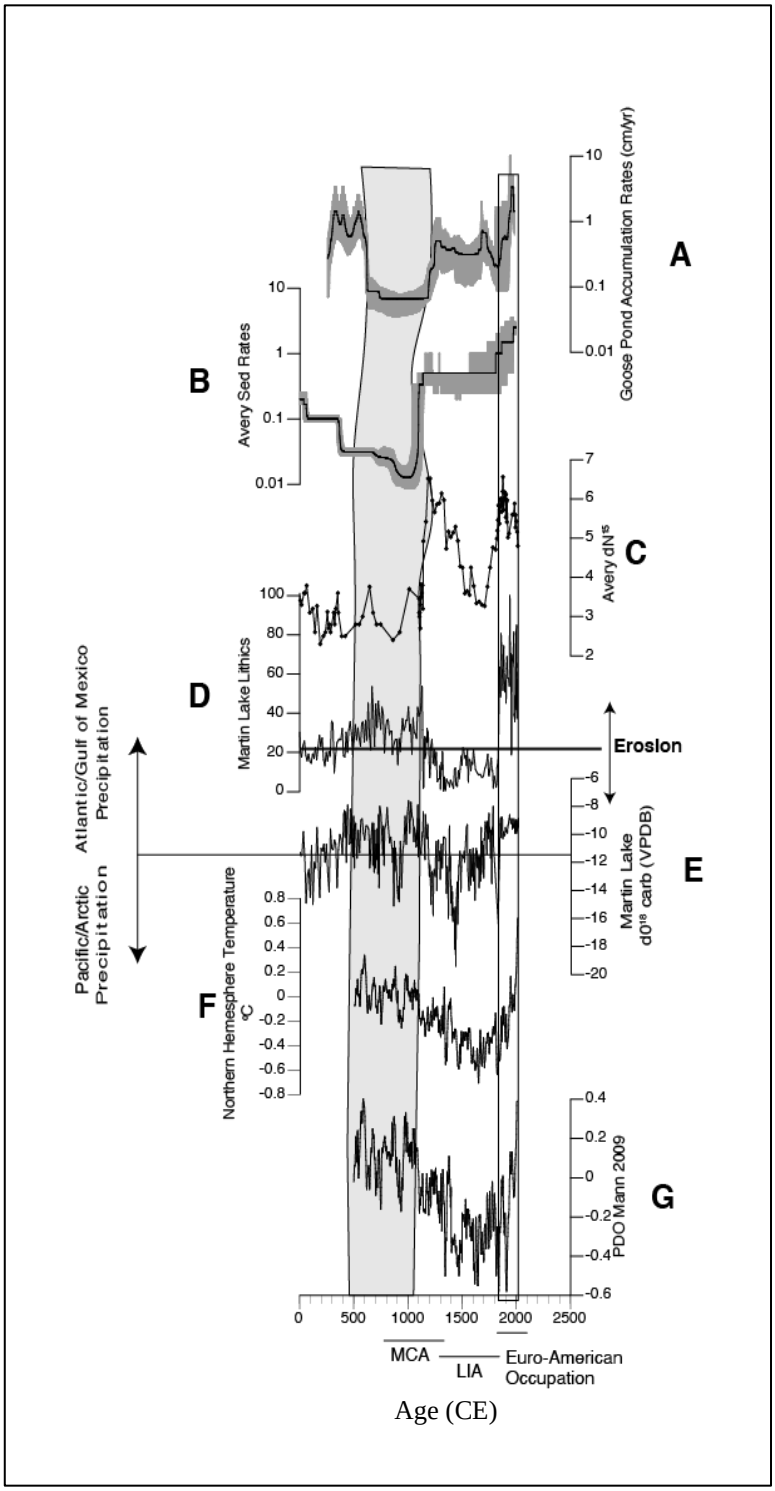

Figure 7 Climate and sedimentation rate plots: Climate figure with Northern Hemisphere temperature (F), sedimentation accumulation records for Avery Lake (B) and Goose Pond (A). Avery Lake Nitrogen plot (C) is representative of human occupations. Martin Lake carbonates (E)indicating the difference between +/-PNA and Lithics (D) indicating erosional frequencies. (G) is the PDO plot from Mann, 2009. Climate and Sedimentation rate plots

flooding history for the LOR using sediment accumulation rates at Avery and Hovey lakes. At Avery Lake, 14 ^{14}C dates were used to reconstruct flood frequencies on the LOR spanning the last 3000 years. This reconstruction showed that sedimentation at Avery Lake was moderate from the beginning of the record (Give a date) to 350 CE. After 350 CE, sedimentation rates remained low until increasing at 1100 CE. Sedimentation remained relatively constant until 1830 CE, at which point they increased dramatically to the present. Nearby Hovey Lake shows a sediment accumulation pattern similar to the record at Avery Lake for the 700 years that these records overlap showing a moderate sedimentation rate during the beginning of the record with a sharp decrease in rates. However, due to weak relationship with the age model near the end of the record, a complete comparison between the two lakes was not feasible

5.2 Flooding and Sedimentation at Goose Pond

As a floodplain lake on the LOR that is in a similar fluvial geomorphic environment as Avery and Hovey lakes, we suggest that the sediment accumulation record at Goose Pond is reflective of the history of flood frequency on the LOR. In support of this assertion, the sediment accumulation record from Goose Pond compares favorably with accumulation records from Avery and Hovey lakes. For example, sedimentation rates at Goose Pond were higher from 20 to 150 CE with little fluctuation for the first 200-300 years of the record at Goose Pond. At Avery Lake we see a similar trend; however, at Goose this rate is higher than at Avery Lake and continued to be higher until sedimentation rates decrease ~550 CE and stabilize at a lower rate for the next ~500 years (Fig. 7A/B). A dramatic increase in sedimentation rates occurred after

1100 CE at Avery and after 1200 CE at Goose Pond, indicating that the early increase in sedimentation at Avery Lake may have been in part due to pre-Columbian Native American activities at Kincaid Mounds, a large archaeological site located directly adjacent to Avery Lake (Bird et al., 2019). The dramatic increase in sedimentation rates at Avery Lake that occurred 100 years later at Goose may therefore reflect the "natural" increase in LOR flooding during the LIA.

5.3 Differences Between the Avery Lake and Goose Pond Flood Records

The beginning of the Avery Lake and Goose Pond records show a considerable difference in the magnitudes of sedimentation rates, with higher rates recorded at Goose Pond than Avery Lake. Due to these two lakes being on the same river they should show the same flooding history. The difference between

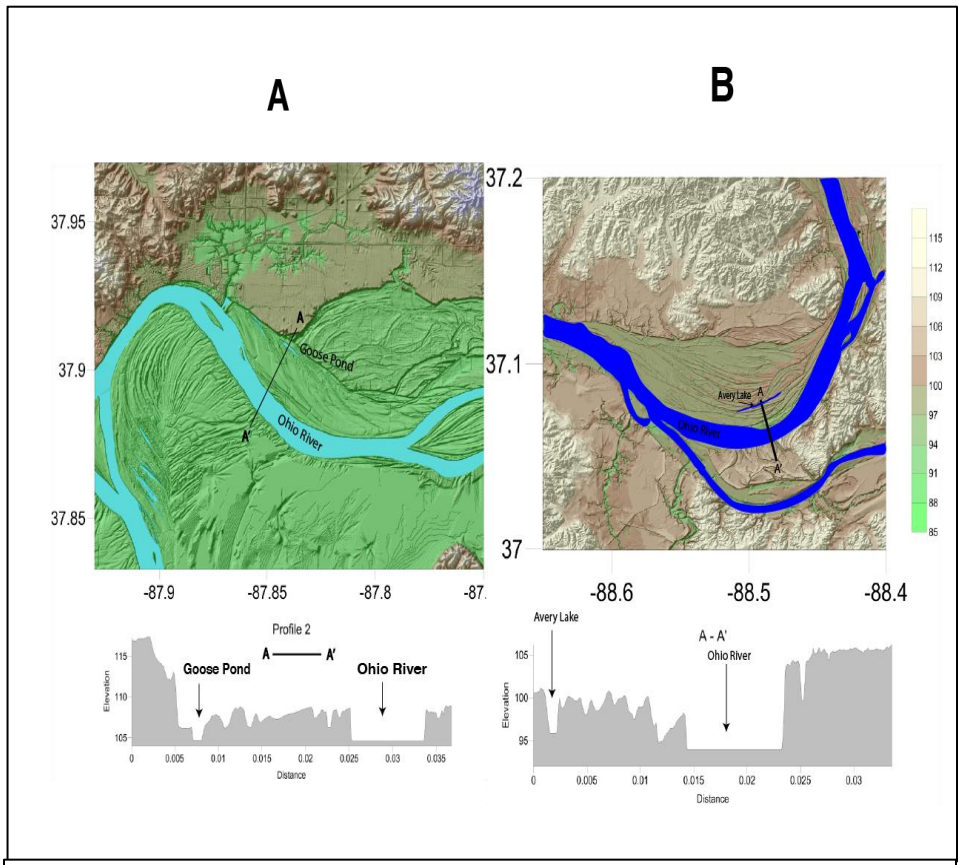

Figure 8 Goose Pond and Avery Lake elevation profiles: Side by side elevation profiles of Goose Pond (A) and Avery Lake (B). Shown in each image is the ridge and swale topography associated with many floodplains along the Lower Ohio River.

flooding histories could be argued that each lake's elevation relative to the Ohio River is part of the factors controlling the magnitude and recurrence of flood events. Goose Pond's lower elevation relative to Avery would mean that it floods more frequently. However, we would expect proportional increases at both lakes during the LIA (Fig. 7). Instead, the LIA increase at Goose Pond is not larger than the high sedimentation rates in the beginning of the record. The difference in the sedimentation rates during the early part of the Goose and Avery records is that the angle of incidence between the Ohio and Goose was low, almost parallel right after Goose formed. At Avery, the angle of incidence was larger. The fact that the LOR was parallel to Goose, or close to it, likely resulted in more sediment being pumped into the lake. Eventually as the LOR migrated away and the angle of incidence increased, less sediment was funneled directly into Goose Pond and the main source of sediment was suspended sediment settling out of the water column (instead of being pumped in by direct river inflow).

Other subtle, but noticeable differences between the Goose Pond and Avery Lake flood records become apparent when considering the timing of sedimentation rate changes between the records. For example, Avery Lake's sedimentation rates decreased at 350 CE, 250 years before Goose Pond at 600 CE (Fig. 7A&B). Avery's decreased sedimentation rates at 350 CE can plausibly be explained by the differences in elevation between the two lakes and the Ohio River at their respective reaches (Fig. 8). Goose Pond (Fig. 8A) is the same elevation as the Ohio River (106 m), so when the Ohio River floods Goose Pond will also flood, even during minor events. Avery Lake on the other hand has an elevation of 102 m above sea level, which is 9 meters higher than the Ohio River at this location (93 m asl) (Fig. 8B). Therefore, the early decrease in sedimentation rates at

Avery Lake relative to Goose Pond likely indicates a decrease in the frequency of large magnitude floods (i.e., those producing flood in excess of 9 m). The later decrease in sedimentation rates at Goose Pond at 600 CE in turn reflects a decrease in the frequency of low magnitude events. The abrupt and sustained decline in flood frequency at Goose Pond from 600 CE to 1200 CE while sed rates at Avery Lake were also low suggests that this was the time of minimum flood frequency and magnitude, such that even low magnitude floods were less frequent.

The return to higher sedimentation rates following the aforementioned low also occurred earlier at Avery Lake (1100 CE) relative to Goose Pond (1200 CE) (Fig. 7A&B). The increase in sedimentation rates at Avery was attributed to an increase in flooding at that time in response to LIA climatic changes (Bird et al., 2019). Importantly however, Avery Lake is located directly adjacent to Kinkaid Mounds, one of the largest Mississippian Period (1000 – 1450 CE) Native American population centers. The site features large earth works and was surrounded by a stout palisade (Butler 2014). Archaeological evidence and geochemical data from Avery Lake indicate that the population at Kincaid Mounds increased significantly between 1100 and 1150 CE. It is therefore possible that the early increase in sedimentation rates at Avery Lake reflects land scape disturbances at Kincaid Mounds associated with the occupation of the site and the construction of earthworks and the palisade. Goose Pond, however, did not have a significant Mississippian population and there were no local earthworks or fortified villages. The later increase in sedimentation rates at Goose Pond therefore more likely reflect the increase in LOR flooding at 1200 CE. That both the Avery Lake and Goose

Pond records maintain high sedimentation rates from 1200 to 1800 CE indicates that this was a regional signal that reflects increased flood driven sedimentation at each site.

5.4 Climate-Flood Relationships on the Lower Ohio River

In order to determine potentially causal relationships between Midwestern climatic changes and LOR flood frequencies, the Goose Pond flood record was compared to reconstructions of late Holocene atmospheric circulation, warm-season duration, and summer rainstorm events from Martin Lake, IN (Fig. 7) (Bird et al 2017). Martin Lake is a small kettle lake located in northeastern Indiana (N 41.564323, W -85.384613) that serves as a detailed record of climatic impacts on the Midwest. Midwestern atmospheric circulation was reconstructed at Martin Lake by interpreting down-core oxygen isotope ($\delta^{18}O_{cal}$) measurements in the context of modern atmospheric circulation-precipitation $\delta^{18}O$ relationships. Specifically, modern precipitation originating from the Gulf of Mexico and Atlantic during the warm season is isotopically higher (~-5.5 ‰) than moisture originating from the Pacific Northwest/Arctic during the cold season (~-16.4 ‰). Down-core $\delta^{18}O_{cal}$ variations therefore reflect changes in the dominant moisture source and the season during which it was delivered. Notably variations in the Martin Lake $\delta^{18}O$ data can be attributed to variations of the PNA, where a –PNA indicates moisture derived from the Gulf and an expected δO^{18} value of -5.5‰ and a +PNA consists of moisture from the Arctic and a value of -16.4‰ (Bird et al., 2017). The lithic percentage reflects changes in sediment transport from warm-season rainstorm runoff whereby increased runoff delivers more lithics to the lake and vice versa (Bird et al. 2017). Importantly, and consistent with the PNA-$\delta^{18}O_{cal}$ relationships, lithics increased

when high $\delta^{18}O_{cal}$ indicates -PNA-like conditions and decreased when $\delta^{18}O_{cal}$ indicated +PNA-like conditions.

During the late Holocene, the Martin Lake data shows that when the Northern Hemisphere was warm, like during the Medieval Climate Anomaly (MCA; 950-1250 CE) and current warm period (CWP; last ca. 100 years), precipitation was derived from the Gulf of Mexico and warm-season rainstorm events were more frequent. When the Northern Hemisphere was in a cold period, such as during the LIA, precipitation was derived from the Pacific Ocean and the Arctic and warm-season rainstorms decreased while cold-season snow increased.

Comparing the Martin Lake paleoclimate data with the Avery Lake and Goose Pond flood reconstructions provides insight into climate-flood relationships. Prior to 550 CE, +PNA conditions predominated (low Martin Lake $\delta^{18}O_{cal}$ and low % lithics) while at the same time sedimentation rates were high at Avery Lake and Goose Pond (Bird et al. 2017). –PNA-like conditions persisted from 660 to 1150 CE, which was accompanied by decreased flood frequencies at Goose Pond and Avery Lake. As temperatures cooled and atmospheric circulation resembled more winter like conditions during the LIA, flood frequencies on the LOR as indicated by Goose Pond and Avery Lake increased dramatically. These relationships support the hypothesis putforth by Bird et al. (2019) that flood frequencies on the LOR prior to Euro-American settlements in the 1800s were related to changes in the seasonality of precipitation with more frequent floods during times predominated by winter-like +PNA-like conditions. The continued increase in sedimentation rates (i.e., flood frequencies) after 1830, despite a return to -PNA-like conditions that should have reduced flood frequencies, supports the idea that Euro-

American land use changes, specifically massive deforestation and widespread agriculture, altered the “natural” climate-flood relationships indicated by Goose Pond and Avery Lake.

Chapter 6 Conclusions

Sediment accumulation rates at Goose Pond are interpreted to reflect changes in the frequency of low magnitude floods on the lower Ohio River. When synthesized with the Avery Lake flood reconstruction, these records confirm that there are similar flooding relationships along the LOR. Specifically, prior to ~1830 CE, periods with increased flooding frequencies and magnitudes were associated with climatic conditions predominated by winter/cold-season precipitation (i.e., snow). Conversely, times when flooding frequencies and magnitudes were diminished were associated with climatic conditions predominated by rainfall/warm-season precipitation. This supports the idea suggested by Bird et al. (2019) that LOR floods were more frequent and higher magnitude during winter dominated climate regimes in the past as a result of late winter and/or early spring melts that rapidly increased overland flow into the Ohio River system over a wide geographic area, thus resulting in elevated discharges that caused frequent large magnitude floods. Conversely, overland flow into the Ohio River system was diminished during times when summer (rainfall) precipitation predominated because increased infiltration and evapotranspiration of the available moisture reduced overland flow and Ohio River discharges. In addition, warm-season precipitation events were not extensive enough in a geographic sense to result in the same type of widespread influx of surface flow into the Ohio River system, thereby further reducing discharges when warm-season precipitation predominated. Notably, the predominance of warm- and cold-season precipitation was closely associated with atmospheric circulation patterns that resemble those related the Pacific North American Mode, which in turn is influenced by Pacific ocean-atmosphere variability; negative PNA-like and negative PDO (e.g., La Niña-like)

mean state conditions were associated with reduced flooding whereas positive PNA-like and positive PDO (El Niño-like) mean state conditions were associated with increased flooding.

After ~1830 CE, the above climate-flood relationships appear to have been fundamentally altered by deforestation in the Ohio River watershed. Specifically, flood frequencies and magnitudes increased after 1830 CE despite a shift to -PNA-like and -PDO mean states, climatic conditions that previously promoted reduced flood frequencies and magnitudes.

The above findings suggest that the Ohio River system has become increasingly sensitive to flooding and that continued increases in annual precipitation, including extreme rainstorm events, will likely lead to further increases in the frequency and magnitudes of floods. Mediations strategies that focus on reducing overland flow into tributary streams, or increasing the time it takes for overland flow to reach tributary streams may be one way to reduce flood frequencies and magnitudes.

Appendices

Appendix A (XRF raw data)

Depth	Age	Al	Si	P	S	Cl	Ca	Ti	Mn	Fe	Zn	As	Rb	Sr	Y	Zr	Nb	Pb
1	2017	0.2750	2.0071	0.0532	0.0119	0.0532	0.3811	0.1884	0.0640	2.2876	0.0084	0.0006	0.0059	0.0043	0.0019	0.0103	0.0012	0.0014
2	2017	0.2750	2.2291	0.0533	0.0135	0.0482	0.3757	0.1934	0.0605	2.3853	0.0085	0.0005	0.0060	0.0044	0.0019	0.0104	0.0014	0.0015
3	2016	0.2500	2.3883	0.0550	0.0092	0.0447	0.3687	0.1985	0.0519	2.4867	0.0085	0.0007	0.0061	0.0046	0.0021	0.0106	0.0016	0.0013
4	2015	0.2500	2.3293	0.0507	0.0099	0.0416	0.3561	0.1922	0.0734	2.4960	0.0080	0.0008	0.0060	0.0047	0.0022	0.0109	0.0015	0.0012
5	2015	0.2700	2.2437	0.0495	0.0135	0.0518	0.3628	0.1831	0.0624	2.4457	0.0079	0.0008	0.0059	0.0045	0.0021	0.0105	0.0013	0.0013
6	2014	0.2750	2.0668	0.0514	0.0207	0.0532	0.3742	0.1764	0.0484	2.3733	0.0082	0.0006	0.0060	0.0044	0.0019	0.0099	0.0013	0.0015
7	2013	0.3050	1.9765	0.0511	0.0245	0.0446	0.3632	0.1768	0.0507	2.4011	0.0085	0.0007	0.0060	0.0043	0.0019	0.0095	0.0012	0.0014
8	2012	0.3100	2.1122	0.0530	0.0164	0.0470	0.3590	0.1779	0.0475	2.4424	0.0083	0.0007	0.0060	0.0044	0.0019	0.0094	0.0012	0.0015
9	2012	0.3200	2.1199	0.0520	0.0072	0.0454	0.3462	0.1714	0.0556	2.4089	0.0078	0.0003	0.0059	0.0044	0.0019	0.0093	0.0014	0.0016

20	19	18	17	16	15	14	13	12	11	10
2004	2005	2005	2006	2007	2008	2008	2009	2010	2010	2011
0.2850	0.3650	0.3700	0.3200	0.3200	0.3200	0.3000	0.3050	0.2850	0.2950	0.3700
1.9502	2.2113	2.2800	2.0504	1.9769	1.9515	2.0458	2.0317	2.0552	2.0937	2.0753
0.0538	0.0554	0.0553	0.0567	0.0601	0.0574	0.0562	0.0578	0.0544	0.0566	0.0539
0.0170	0.0121	0.0103	0.0071	0.0076	0.0072	0.0083	0.0104	0.0095	0.0072	0.0062
0.0446	0.0430	0.0414	0.0425	0.0448	0.0461	0.0445	0.0439	0.0431	0.0396	0.0402
0.3354	0.3417	0.3398	0.3556	0.3680	0.3391	0.3326	0.3355	0.3333	0.3359	0.3341
0.1805	0.1922	0.1948	0.1754	0.1713	0.1700	0.1679	0.1670	0.1662	0.1760	0.1753
0.0295	0.0297	0.0304	0.0295	0.0326	0.0405	0.0452	0.0422	0.0534	0.0558	0.0537
2.5538	2.5740	2.5906	2.5269	2.4713	2.3800	2.4376	2.4752	2.4919	2.5367	2.4541
0.0086	0.0088	0.0088	0.0082	0.0082	0.0083	0.0082	0.0080	0.0077	0.0078	0.0076
0.0006	0.0008	0.0007	0.0007	0.0006	0.0005	0.0007	0.0006	0.0006	0.0007	0.0003
0.0062	0.0062	0.0063	0.0063	0.0062	0.0058	0.0059	0.0060	0.0059	0.0059	0.0059
0.0045	0.0044	0.0045	0.0045	0.0044	0.0044	0.0044	0.0042	0.0042	0.0044	0.0044
0.0020	0.0021	0.0021	0.0021	0.0021	0.0020	0.0020	0.0020	0.0019	0.0020	0.0020
0.0099	0.0099	0.0100	0.0098	0.0098	0.0096	0.0095	0.0092	0.0093	0.0095	0.0092
0.0013	0.0013	0.0015	0.0016	0.0015	0.0014	0.0014	0.0015	0.0015	0.0013	0.0012
0.0018	0.0016	0.0016	0.0014	0.0014	0.0014	0.0014	0.0015	0.0014	0.0013	0.0015

31	30	29	28	27	26	25	24	23	22	21
1996	1997	1998	1998	1999	2000	2000	2001	2002	2003	2003
0.2900	0.2950	0.3050	0.3600	0.3350	0.3000	0.2800	0.2850	0.3550	0.3700	0.3200
2.1121	2.2073	2.1626	2.2006	2.1147	2.0614	2.0851	1.9329	1.8523	2.0557	2.1548
0.0541	0.0547	0.0530	0.0545	0.0540	0.0501	0.0529	0.0533	0.0521	0.0517	0.0502
0.1365	0.1220	0.0296	0.0428	0.0302	0.0151	0.0252	0.1428	0.1333	0.0187	0.0215
0.0351	0.0332	0.0360	0.0462	0.0483	0.0366	0.0367	0.0364	0.0330	0.0298	0.0342
0.3300	0.3383	0.3303	0.3252	0.3182	0.3160	0.3247	0.3225	0.3141	0.3223	0.3381
0.1779	0.1857	0.1812	0.1832	0.1846	0.1811	0.1834	0.1780	0.1706	0.1805	0.1882
0.0281	0.0303	0.0281	0.0273	0.0294	0.0283	0.0295	0.0283	0.0277	0.0303	0.0315
2.8066	2.8218	2.7786	2.7460	2.6874	2.6164	2.6368	2.6573	2.6249	2.6562	2.6559
0.0099	0.0099	0.0096	0.0097	0.0094	0.0093	0.0094	0.0089	0.0087	0.0095	0.0096
0.0008	0.0008	0.0007	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007	0.0008	0.0006
0.0068	0.0068	0.0066	0.0067	0.0065	0.0064	0.0066	0.0065	0.0062	0.0062	0.0063
0.0045	0.0046	0.0045	0.0044	0.0042	0.0044	0.0045	0.0044	0.0043	0.0045	0.0047
0.0021	0.0020	0.0020	0.0021	0.0020	0.0021	0.0021	0.0019	0.0019	0.0022	0.0022
0.0093	0.0093	0.0089	0.0087	0.0087	0.0091	0.0094	0.0094	0.0092	0.0101	0.0106
0.0012	0.0011	0.0015	0.0015	0.0013	0.0014	0.0015	0.0014	0.0014	0.0015	0.0014
0.0017	0.0018	0.0019	0.0018	0.0017	0.0017	0.0015	0.0016	0.0017	0.0015	0.0017

42	41	40	39	38	37	36	35	34	33	32
1988	1989	1990	1991	1991	1992	1993	1993	1994	1995	1995
0.3050	0.2900	0.2750	0.2150	0.2300	0.2974	0.3174	0.3000	0.2700	0.3100	0.3100
2.1361	1.8971	1.6571	1.6650	1.7903	1.9190	2.1321	2.2762	1.9864	1.8789	1.9547
0.0480	0.0456	0.0412	0.0425	0.0466	0.0459	0.0485	0.0498	0.0471	0.0467	0.0497
0.0106	0.0238	0.0278	0.0211	0.0822	0.0959	0.0384	0.0342	0.0341	0.0229	0.0360
0.0442	0.0454	0.0407	0.0386	0.0424	0.0330	0.0302	0.0342	0.0405	0.0431	0.0407
0.3048	0.2982	0.2797	0.2785	0.3050	0.3114	0.3186	0.3280	0.3205	0.3198	0.3173
0.1773	0.1622	0.1669	0.1684	0.1846	0.2035	0.1914	0.1830	0.1811	0.1810	0.1742
0.0296	0.0245	0.0223	0.0237	0.0249	0.0274	0.0271	0.0245	0.0254	0.0274	0.0275
2.8442	2.5667	2.5460	2.6649	2.7370	2.8624	2.7420	2.6650	2.6599	2.6424	2.7101
0.0099	0.0090	0.0092	0.0100	0.0101	0.0103	0.0101	0.0094	0.0093	0.0095	0.0095
0.0007	0.0007	0.0009	0.0008	0.0007	0.0009	0.0008	0.0007	0.0008	0.0007	0.0006
0.0068	0.0065	0.0064	0.0067	0.0069	0.0070	0.0068	0.0067	0.0066	0.0065	0.0065
0.0044	0.0042	0.0043	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0044	0.0044
0.0020	0.0021	0.0020	0.0020	0.0020	0.0021	0.0021	0.0020	0.0019	0.0020	0.0020
0.0090	0.0086	0.0083	0.0089	0.0093	0.0093	0.0092	0.0090	0.0089	0.0089	0.0090
0.0014	0.0015	0.0016	0.0015	0.0015	0.0015	0.0015	0.0014	0.0012	0.0012	0.0014
0.0022	0.0019	0.0019	0.0024	0.0023	0.0020	0.0019	0.0019	0.0018	0.0019	0.0019

53	52	51	50	49	48	47	46	45	44	43
1981	1981	1982	1983	1983	1984	1985	1986	1986	1987	1988
0.3400	0.3750	0.3850	0.3600	0.2800	0.2300	0.2900	0.3400	0.3500	0.3350	0.3150
1.9357	1.8784	1.8353	1.8942	2.0082	2.0585	2.1143	2.1594	2.1111	2.0487	2.0532
0.0428	0.0413	0.0411	0.0461	0.0463	0.0461	0.0479	0.0476	0.0467	0.0475	0.0489
0.0308	0.0281	0.0314	0.0817	0.0627	0.0614	0.0659	0.0351	0.0658	0.0573	0.0175
0.0409	0.0406	0.0402	0.0403	0.0346	0.0364	0.0401	0.0418	0.0382	0.0419	0.0510
0.3093	0.3110	0.3022	0.3054	0.3063	0.3036	0.3085	0.3139	0.3088	0.3059	0.3053
0.1825	0.1856	0.1657	0.1565	0.1791	0.1789	0.1898	0.2041	0.1963	0.1787	0.1738
0.0412	0.0485	0.0437	0.0351	0.0328	0.0294	0.0300	0.0281	0.0268	0.0264	0.0277
3.1028	3.1231	2.8881	2.8517	3.0022	2.9352	2.9253	2.9720	2.9610	2.8176	2.7943
0.0109	0.0116	0.0115	0.0111	0.0116	0.0113	0.0107	0.0109	0.0107	0.0102	0.0102
0.0009	0.0009	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0009	0.0009	0.0008
0.0070	0.0069	0.0066	0.0066	0.0070	0.0069	0.0069	0.0071	0.0070	0.0067	0.0066
0.0044	0.0045	0.0043	0.0042	0.0046	0.0046	0.0046	0.0046	0.0045	0.0044	0.0043
0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0021	0.0021	0.0020	0.0019	0.0019
0.0079	0.0080	0.0077	0.0078	0.0089	0.0092	0.0093	0.0094	0.0088	0.0085	0.0085
0.0012	0.0014	0.0015	0.0013	0.0013	0.0015	0.0016	0.0018	0.0016	0.0016	0.0015
0.0024	0.0025	0.0023	0.0021	0.0022	0.0023	0.0023	0.0022	0.0020	0.0021	0.0022

64	63	62	61	60	59	58	57	56	55	54
1973	1974	1974	1975	1976	1976	1977	1978	1978	1979	1980
0.2950	0.3000	0.2600	0.2040	0.2040	0.3250	0.4150	0.3500	0.2750	0.2750	0.3050
1.9606	1.9477	2.0652	1.7225	1.5398	1.8860	2.0265	2.0190	1.9494	1.7508	1.8269
0.0417	0.0418	0.0423	0.0297	0.0306	0.0441	0.0466	0.0503	0.0494	0.0455	0.0427
0.0669	0.1075	0.1160	0.0676	0.0320	0.0560	0.0566	0.0689	0.1217	0.0863	0.0221
0.0368	0.0363	0.0377	0.0194	0.0238	0.0450	0.0416	0.0392	0.0393	0.0429	0.0411
0.2881	0.2893	0.2964	0.2454	0.2413	0.2975	0.3072	0.3121	0.3166	0.3132	0.3057
0.1846	0.1854	0.1948	0.1879	0.1757	0.1772	0.1840	0.1853	0.1756	0.1582	0.1639
0.0340	0.0340	0.0307	0.0321	0.0319	0.0312	0.0341	0.0373	0.0396	0.0377	0.0364
2.9345	2.9731	3.0921	2.9694	2.9587	3.0683	3.0900	3.0775	3.0915	2.9438	2.8985
0.0115	0.0111	0.0112	0.0111	0.0110	0.0107	0.0111	0.0113	0.0109	0.0105	0.0105
0.0009	0.0010	0.0010	0.0009	0.0009	0.0009	0.0009	0.0008	0.0008	0.0007	0.0007
0.0071	0.0072	0.0074	0.0071	0.0067	0.0070	0.0073	0.0073	0.0071	0.0067	0.0068
0.0045	0.0044	0.0044	0.0044	0.0043	0.0045	0.0046	0.0047	0.0046	0.0044	0.0043
0.0021	0.0020	0.0020	0.0021	0.0022	0.0021	0.0020	0.0021	0.0021	0.0021	0.0021
0.0077	0.0078	0.0081	0.0080	0.0078	0.0079	0.0081	0.0085	0.0084	0.0077	0.0076
0.0012	0.0013	0.0013	0.0015	0.0016	0.0015	0.0014	0.0014	0.0014	0.0015	0.0014
0.0022	0.0020	0.0021	0.0022	0.0022	0.0022	0.0025	0.0024	0.0024	0.0024	0.0023

75	74	73	72	71	70	69	68	67	66	65
1970	1970	1970	1971	1971	1971	1972	1972	1972	1973	1973
0.2800	0.2150	0.2750	0.3900	0.3000	0.2750	0.3300	0.2950	0.2800	0.2950	0.3000
2.0851	2.0503	2.0292	2.0376	1.7325	1.6697	1.9217	1.9146	1.8586	1.8402	1.9955
0.0487	0.0508	0.0492	0.0463	0.0302	0.0298	0.0434	0.0438	0.0471	0.0450	0.0416
0.0459	0.0383	0.0699	0.0480	0.0116	0.0146	0.0508	0.0606	0.0765	0.1426	0.1168
0.0411	0.0467	0.0413	0.0401	0.0248	0.0222	0.0412	0.0447	0.0417	0.0321	0.0314
0.3039	0.3033	0.3018	0.3033	0.2638	0.2600	0.2971	0.3045	0.3012	0.2897	0.2905
0.1796	0.1760	0.1760	0.1875	0.1708	0.1608	0.1884	0.1861	0.1712	0.1839	0.1911
0.0325	0.0331	0.0393	0.0412	0.0402	0.0416	0.0390	0.0334	0.0354	0.0393	0.0344
3.0627	2.9898	3.0059	3.0846	2.9362	2.8826	3.0287	2.9812	2.9147	3.0230	3.0630
0.0117	0.0113	0.0113	0.0115	0.0110	0.0113	0.0112	0.0104	0.0111	0.0115	0.0115
0.0010	0.0010	0.0011	0.0010	0.0009	0.0009	0.0010	0.0009	0.0008	0.0010	0.0010
0.0075	0.0072	0.0072	0.0073	0.0070	0.0069	0.0071	0.0071	0.0071	0.0072	0.0072
0.0046	0.0045	0.0046	0.0047	0.0044	0.0042	0.0044	0.0045	0.0043	0.0045	0.0046
0.0020	0.0022	0.0022	0.0020	0.0019	0.0019	0.0020	0.0021	0.0021	0.0020	0.0021
0.0084	0.0082	0.0082	0.0084	0.0080	0.0077	0.0081	0.0083	0.0080	0.0080	0.0079
0.0014	0.0012	0.0014	0.0014	0.0014	0.0015	0.0014	0.0014	0.0014	0.0012	0.0011
0.0020	0.0022	0.0023	0.0022	0.0022	0.0024	0.0024	0.0022	0.0022	0.0020	0.0022

86	85	84	83	82	81	80	79	78	77	76
1966	1967	1967	1967	1968	1968	1968	1969	1969	1969	1970
0.3150	0.3600	0.3300	0.3000	0.3100	0.3150	0.3450	0.4200	0.3900	0.2400	0.2500
1.8918	1.8321	1.9629	2.1631	2.1419	2.1774	2.3093	2.2691	2.3903	2.2400	2.0636
0.0478	0.0480	0.0426	0.0433	0.0465	0.0460	0.0465	0.0480	0.0509	0.0469	0.0457
0.0267	0.0269	0.0144	0.0568	0.0565	0.0189	0.0928	0.0886	0.0102	0.0110	0.0521
0.0398	0.0424	0.0405	0.0360	0.0360	0.0368	0.0324	0.0305	0.0385	0.0459	0.0404
0.3027	0.2943	0.2916	0.3062	0.3026	0.3009	0.3116	0.3084	0.3135	0.3072	0.2999
0.1843	0.1720	0.1732	0.1841	0.1815	0.1892	0.1985	0.2021	0.2021	0.1835	0.1752
0.0388	0.0341	0.0298	0.0325	0.0341	0.0338	0.0339	0.0331	0.0357	0.0331	0.0316
3.0991	2.9527	2.8343	2.9676	2.9998	3.0402	3.1532	3.0882	2.9992	2.9035	2.9531
0.0127	0.0118	0.0113	0.0115	0.0115	0.0120	0.0124	0.0118	0.0114	0.0110	0.0113
0.0011	0.0010	0.0010	0.0008	0.0010	0.0011	0.0009	0.0009	0.0010	0.0010	0.0011
0.0072	0.0071	0.0068	0.0071	0.0074	0.0074	0.0075	0.0075	0.0074	0.0070	0.0072
0.0046	0.0046	0.0046	0.0048	0.0046	0.0047	0.0048	0.0047	0.0047	0.0045	0.0045
0.0020	0.0019	0.0019	0.0021	0.0020	0.0020	0.0021	0.0021	0.0020	0.0020	0.0019
0.0083	0.0083	0.0086	0.0089	0.0086	0.0088	0.0090	0.0085	0.0086	0.0084	0.0082
0.0013	0.0012	0.0013	0.0015	0.0015	0.0017	0.0017	0.0015	0.0015	0.0014	0.0014
0.0026	0.0025	0.0025	0.0026	0.0022	0.0023	0.0024	0.0023	0.0023	0.0022	0.0021

97	96	95	94	93	92	91	90	89	88	87
1963	1963	1963	1964	1964	1964	1965	1965	1965	1966	1966
0.2850	0.3400	0.3300	0.3150	0.3150	0.3000	0.2800	0.3200	0.3200	0.3250	0.3350
2.0395	2.0179	2.1358	2.2499	2.1283	1.9402	1.8243	1.8994	2.0940	2.1047	2.0899
0.0431	0.0435	0.0502	0.0491	0.0467	0.0460	0.0447	0.0453	0.0489	0.0500	0.0491
0.0395	0.0455	0.0419	0.0431	0.0354	0.0193	0.0283	0.0345	0.0477	0.0614	0.0369
0.0428	0.0442	0.0469	0.0414	0.0408	0.0443	0.0426	0.0377	0.0413	0.0439	0.0387
0.3343	0.3351	0.3440	0.3480	0.3432	0.3356	0.3134	0.3244	0.3419	0.3232	0.3134
0.2019	0.2034	0.2059	0.2094	0.2090	0.1884	0.1713	0.1780	0.1874	0.1872	0.1895
0.0399	0.0447	0.0472	0.0465	0.0450	0.0417	0.0364	0.0424	0.0472	0.0428	0.0413
3.1754	3.2193	3.3047	3.3402	3.2788	3.1189	2.9200	2.8969	2.9078	2.9781	3.1152
0.0119	0.0120	0.0119	0.0120	0.0119	0.0120	0.0119	0.0117	0.0118	0.0122	0.0128
0.0009	0.0011	0.0011	0.0012	0.0012	0.0010	0.0011	0.0011	0.0011	0.0011	0.0012
0.0075	0.0077	0.0076	0.0077	0.0076	0.0073	0.0069	0.0070	0.0070	0.0069	0.0071
0.0051	0.0052	0.0052	0.0052	0.0052	0.0050	0.0047	0.0048	0.0048	0.0047	0.0047
0.0024	0.0024	0.0024	0.0024	0.0023	0.0023	0.0021	0.0022	0.0022	0.0021	0.0021
0.0094	0.0100	0.0100	0.0097	0.0094	0.0093	0.0091	0.0088	0.0089	0.0088	0.0085
0.0017	0.0017	0.0016	0.0016	0.0015	0.0015	0.0014	0.0014	0.0014	0.0013	0.0014
0.0023	0.0023	0.0025	0.0025	0.0026	0.0025	0.0022	0.0022	0.0023	0.0023	0.0024

108	107	106	105	104	103	102	101	100	99	98
1959	1960	1960	1960	1961	1961	1961	1961	1962	1962	1962
0.2400	0.2850	0.2700	0.2700	0.3350	0.3500	0.3000	0.3000	0.2950	0.2950	0.2700
1.9919	2.2470	2.1757	2.0720	2.1382	2.1797	2.1218	2.2182	2.2178	2.1297	2.1231
0.0244	0.0498	0.0478	0.0477	0.0498	0.0467	0.0462	0.0486	0.0472	0.0459	0.0476
0.0666	0.1315	0.1048	0.0609	0.0615	0.1163	0.1204	0.1060	0.1317	0.0918	0.0379
0.0143	0.0295	0.0312	0.0362	0.0360	0.0351	0.0354	0.0333	0.0351	0.0389	0.0437
0.2534	0.3273	0.3400	0.3446	0.3483	0.3590	0.3617	0.3648	0.3583	0.3419	0.3358
0.2101	0.2103	0.2169	0.2189	0.2177	0.2254	0.2235	0.2135	0.2009	0.1969	0.2022
0.0253	0.0363	0.0439	0.0474	0.0525	0.0580	0.0622	0.0631	0.0581	0.0473	0.0372
2.8154	2.9919	3.0320	3.1012	3.2422	3.2740	3.1984	3.1162	3.0461	3.0711	3.1473
0.0105	0.0113	0.0116	0.0121	0.0122	0.0118	0.0114	0.0117	0.0118	0.0115	0.0115
0.0008	0.0009	0.0009	0.0009	0.0010	0.0009	0.0008	0.0008	0.0008	0.0008	0.0009
0.0074	0.0075	0.0076	0.0075	0.0075	0.0074	0.0074	0.0073	0.0070	0.0071	0.0073
0.0049	0.0049	0.0050	0.0050	0.0050	0.0051	0.0051	0.0051	0.0050	0.0050	0.0049
0.0022	0.0022	0.0021	0.0022	0.0023	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022
0.0099	0.0091	0.0091	0.0094	0.0094	0.0096	0.0097	0.0095	0.0092	0.0091	0.0090
0.0015	0.0014	0.0015	0.0017	0.0018	0.0016	0.0015	0.0016	0.0016	0.0015	0.0016
0.0018	0.0019	0.0022	0.0024	0.0024	0.0024	0.0028	0.0029	0.0027	0.0025	0.0023

119	118	117	116	115	114	113	112	111	110	109
1954	1956	1956	1957	1957	1957	1958	1958	1958	1959	1959
0.2550	0.3000	0.3600	0.4050	0.3450	0.3250	0.3450	0.3100	0.2700	0.3000	0.2650
2.0569	2.0218	2.1240	2.1486	1.9016	1.8277	1.9790	1.9829	1.8741	2.0523	1.9661
0.0445	0.0453	0.0467	0.0439	0.0441	0.0462	0.0491	0.0470	0.0448	0.0475	0.0242
0.0977	0.0630	0.0501	0.0762	0.1056	0.1270	0.1417	0.1035	0.0549	0.0377	0.0201
0.0289	0.0371	0.0393	0.0296	0.0313	0.0388	0.0360	0.0321	0.0333	0.0355	0.0185
0.3136	0.3174	0.3248	0.3194	0.3026	0.3055	0.3152	0.3054	0.2974	0.3155	0.2554
0.1957	0.1987	0.1955	0.1906	0.1877	0.1768	0.1846	0.1883	0.1761	0.1914	0.2056
0.0386	0.0393	0.0361	0.0351	0.0370	0.0399	0.0412	0.0405	0.0382	0.0336	0.0235
3.0796	3.0981	3.0513	3.1863	3.2328	3.1356	3.1929	3.1246	2.9339	2.9323	2.8418
0.0128	0.0136	0.0129	0.0120	0.0113	0.0112	0.0114	0.0114	0.0107	0.0106	0.0102
0.0011	0.0011	0.0010	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
0.0077	0.0075	0.0073	0.0075	0.0073	0.0069	0.0070	0.0072	0.0068	0.0071	0.0074
0.0048	0.0045	0.0045	0.0046	0.0045	0.0044	0.0045	0.0044	0.0043	0.0046	0.0049
0.0022	0.0020	0.0019	0.0019	0.0019	0.0019	0.0020	0.0020	0.0019	0.0021	0.0022
0.0080	0.0074	0.0073	0.0072	0.0071	0.0071	0.0071	0.0071	0.0074	0.0087	0.0099
0.0013	0.0012	0.0012	0.0013	0.0014	0.0014	0.0013	0.0013	0.0013	0.0014	0.0016
0.0025	0.0024	0.0024	0.0024	0.0024	0.0024	0.0023	0.0022	0.0021	0.0022	0.0021

130	129	128	127	126	125	124	123	122	121	120
1929	1932	1934	1936	1938	1941	1943	1945	1947	1949	1951
0.3450	0.3400	0.3700	0.3550	0.3200	0.3450	0.3550	0.3250	0.2750	0.3100	0.2800
1.6778	1.6514	1.5384	1.5554	1.4861	1.5043	1.7237	1.7154	1.6382	1.8034	1.9696
0.0415	0.0468	0.0454	0.0427	0.0393	0.0404	0.0436	0.0339	0.0382	0.0486	0.0455
0.0856	0.0995	0.1315	0.1306	0.1198	0.1266	0.1253	0.0827	0.0500	0.0441	0.0881
0.0378	0.0375	0.0374	0.0332	0.0354	0.0422	0.0379	0.0240	0.0235	0.0359	0.0341
0.2923	0.2911	0.2879	0.2952	0.2857	0.2828	0.2968	0.2795	0.2686	0.2895	0.3051
0.1668	0.1573	0.1615	0.1655	0.1539	0.1474	0.1631	0.1651	0.1471	0.1621	0.1853
0.0337	0.0343	0.0358	0.0387	0.0373	0.0329	0.0306	0.0289	0.0296	0.0320	0.0339
2.9867	2.9733	2.9320	2.9442	2.9765	2.8146	2.8196	2.9234	2.8314	3.0167	3.1194
0.0123	0.0123	0.0121	0.0124	0.0122	0.0114	0.0116	0.0117	0.0109	0.0113	0.0118
0.0009	0.0008	0.0007	0.0007	0.0009	0.0036	0.0035	0.0009	0.0009	0.0009	0.0011
0.0067	0.0067	0.0067	0.0069	0.0070	0.0067	0.0069	0.0070	0.0067	0.0071	0.0075
0.0040	0.0041	0.0041	0.0041	0.0041	0.0040	0.0042	0.0042	0.0041	0.0044	0.0047
0.0018	0.0018	0.0018	0.0017	0.0018	0.0016	0.0016	0.0018	0.0018	0.0018	0.0021
0.0066	0.0064	0.0061	0.0062	0.0065	0.0063	0.0064	0.0066	0.0064	0.0068	0.0077
0.0014	0.0013	0.0011	0.0011	0.0012	0.0011	0.0011	0.0012	0.0011	0.0013	0.0015
0.0025	0.0025	0.0027	0.0029	0.0027			0.0024	0.0023	0.0025	0.0026

141	140	139	138	137	136	135	134	133	132	131
1885	1889	1893	1897	1901	1905	1909	1913	1917	1921	1925
0.4700	0.4350	0.5200	0.5100	0.4200	0.3800	0.3750	0.3450	0.2500	0.2441	0.3141
2.0088	1.8690	2.0253	2.0016	1.7676	1.6794	1.7427	1.7956	1.7172	1.5808	1.5203
0.0402	0.0397	0.0408	0.0412	0.0428	0.0413	0.0441	0.0465	0.0434	0.0454	0.0403
0.1646	0.1173	0.0872	0.1003	0.1302	0.1457	0.0995	0.0984	0.1545	0.1813	0.1379
0.0260	0.0324	0.0299	0.0302	0.0365	0.0327	0.0303	0.0311	0.0312	0.0325	0.0353
0.2725	0.2684	0.2973	0.2957	0.2891	0.3082	0.3207	0.3182	0.3055	0.2781	0.2683
0.1625	0.1510	0.1737	0.1728	0.1544	0.1740	0.1772	0.1639	0.1587	0.1539	0.1609
0.0250	0.0290	0.0344	0.0367	0.0371	0.0448	0.0451	0.0389	0.0413	0.0325	0.0268
2.9761	2.9360	3.1256	3.2067	2.9720	3.1059	3.1054	2.9837	3.0036	2.9172	2.9219
0.0101	0.0097	0.0109	0.0115	0.0108	0.0114	0.0121	0.0123	0.0122	0.0109	0.0110
0.0009	0.0009	0.0008	0.0009	0.0009	0.0008	0.0009	0.0009	0.0009	0.0009	0.0009
0.0067	0.0064	0.0069	0.0069	0.0067	0.0071	0.0071	0.0069	0.0067	0.0060	0.0060
0.0040	0.0039	0.0042	0.0042	0.0040	0.0043	0.0045	0.0044	0.0043	0.0039	0.0038
0.0016	0.0018	0.0019	0.0019	0.0019	0.0019	0.0018	0.0019	0.0019	0.0016	0.0016
0.0063	0.0063	0.0067	0.0066	0.0066	0.0073	0.0071	0.0067	0.0067	0.0061	0.0060
0.0012	0.0009	0.0009	0.0009	0.0009	0.0012	0.0012	0.0011	0.0012	0.0012	0.0012
0.0020	0.0020	0.0023	0.0024	0.0022	0.0024	0.0025	0.0024	0.0026	0.0024	0.0023

152	151	150	149	148	147	146	145	144	143	142
1874	1875	1876	1877	1878	1878	1879	1880	1881	1882	1884
0.2450	0.2682	0.2532	0.3000	0.3400	0.3200	0.3300	0.3100	0.2500	0.2600	0.3900
1.7998	1.8745	1.9140	1.9690	1.8140	1.8726	1.9013	1.6921	1.8320	1.9071	1.9677
0.0382	0.0380	0.0378	0.0418	0.0420	0.0476	0.0484	0.0401	0.0441	0.0469	0.0412
0.1148	0.0940	0.0780	0.1222	0.1049	0.0700	0.0748	0.0595	0.0461	0.0609	0.1160
0.0333	0.0283	0.0292	0.0343	0.0332	0.0348	0.0300	0.0336	0.0398	0.0425	0.0352
0.2832	0.2712	0.2633	0.2740	0.2748	0.2997	0.4129	0.4394	0.3452	0.2892	0.2752
0.1683	0.1644	0.1633	0.1695	0.1679	0.1745	0.1618	0.1494	0.1731	0.1745	0.1676
0.0281	0.0257	0.0230	0.0231	0.0242	0.0315	0.0803	0.1024	0.0535	0.0227	0.0214
3.2330	3.1826	3.4059	3.4248	3.3067	3.3371	3.7616	3.8868	3.4505	3.0954	2.9790
0.0097	0.0096	0.0098	0.0099	0.0098	0.0103	0.0102	0.0100	0.0107	0.0102	0.0100
0.0007	0.0008	0.0009	0.0009	0.0007	0.0009	0.0010	0.0009	0.0009	0.0009	0.0009
0.0071	0.0071	0.0071	0.0072	0.0073	0.0072	0.0069	0.0067	0.0072	0.0069	0.0066
0.0040	0.0040	0.0040	0.0041	0.0042	0.0043	0.0043	0.0043	0.0044	0.0041	0.0039
0.0018	0.0018	0.0019	0.0019	0.0019	0.0018	0.0017	0.0017	0.0018	0.0017	0.0016
0.0067	0.0068	0.0071	0.0069	0.0065	0.0066	0.0067	0.0066	0.0069	0.0068	0.0064
0.0013	0.0012	0.0012	0.0012	0.0010	0.0011	0.0011	0.0010	0.0011	0.0012	0.0012
0.0016	0.0015	0.0017	0.0018	0.0018	0.0019	0.0018	0.0019	0.0020	0.0017	0.0018

163	162	161	160	159	158	157	156	155	154	153
1868	1869	1869	1870	1870	1871	1871	1872	1873	1873	1874
0.2400	0.2900	0.3300	0.4950	0.6250	0.6600	0.5550	0.4200	0.3750	0.3150	0.2300
1.8181	1.9967	2.0346	2.1544	2.4058	2.5505	2.4559	2.2801	2.0626	2.0855	1.9572
0.0428	0.0479	0.0484	0.0433	0.0483	0.0510	0.0473	0.0484	0.0498	0.0474	0.0399
0.0297	0.0337	0.0302	0.0318	0.0397	0.0811	0.0899	0.0844	0.0895	0.0647	0.0865
0.0400	0.0426	0.0377	0.0297	0.0288	0.0231	0.0244	0.0343	0.0334	0.0320	0.0331
0.2906	0.3032	0.3024	0.2903	0.2804	0.2760	0.2828	0.3056	0.2990	0.2882	0.2870
0.1590	0.1695	0.1844	0.1914	0.1944	0.1837	0.1806	0.1896	0.1778	0.1736	0.1734
0.0247	0.0220	0.0234	0.0249	0.0215	0.0188	0.0196	0.0312	0.0358	0.0272	0.0265
2.8072	2.8266	2.9534	3.1310	3.2096	3.2186	3.2747	3.5192	3.4990	3.2126	3.2932
0.0081	0.0086	0.0102	0.0105	0.0096	0.0091	0.0099	0.0107	0.0104	0.0098	0.0099
0.0007	0.0007	0.0008	0.0011	0.0012	0.0011	0.0008	0.0006	0.0006	0.0007	0.0007
0.0067	0.0070	0.0073	0.0076	0.0075	0.0075	0.0076	0.0075	0.0072	0.0071	0.0072
0.0039	0.0039	0.0040	0.0042	0.0043	0.0043	0.0044	0.0046	0.0042	0.0039	0.0041
0.0018	0.0018	0.0018	0.0018	0.0018	0.0019	0.0022	0.0021	0.0018	0.0018	0.0019
0.0066	0.0067	0.0066	0.0065	0.0067	0.0070	0.0073	0.0073	0.0072	0.0069	0.0068
0.0011	0.0012	0.0013	0.0013	0.0014	0.0012	0.0013	0.0015	0.0014	0.0010	0.0010
0.0015	0.0015	0.0016	0.0016	0.0015	0.0015	0.0017	0.0019	0.0018	0.0016	0.0017

174	173	172	171	170	169	168	167	166	165	164
1863	1863.5	1864	1864	1864	1865	1865	1866	1866	1867	1868
0.3750	0.4100	0.3750	0.3300	0.3200	0.2900	0.2450	0.2850	0.3150	0.2850	0.2350
2.1822	2.2928	2.0865	1.9448	1.9449	1.9307	1.9003	1.8023	1.7757	2.0394	1.9719
0.0463	0.0478	0.0455	0.0453	0.0436	0.0452	0.0452	0.0447	0.0448	0.0465	0.0453
0.0304	0.0395	0.0408	0.0617	0.0748	0.0387	0.0541	0.0532	0.0450	0.0820	0.0690
0.0387	0.0331	0.0387	0.0379	0.0360	0.0384	0.0365	0.0377	0.0355	0.0323	0.0353
0.3301	0.3402	0.3153	0.3005	0.2940	0.2914	0.2979	0.3012	0.2923	0.3000	0.2973
0.2016	0.2150	0.2028	0.1844	0.1921	0.1901	0.1886	0.1875	0.1739	0.1776	0.1729
0.0345	0.0340	0.0315	0.0357	0.0335	0.0282	0.0284	0.0268	0.0268	0.0293	0.0288
3.2822	3.1679	3.1411	3.2811	3.2782	3.1619	3.1655	3.1811	3.2715	3.1254	2.8609
0.0093	0.0096	0.0092	0.0092	0.0094	0.0090	0.0089	0.0089	0.0089	0.0095	0.0091
0.0008	0.0008	0.0008	0.0007	0.0007	0.0008	0.0009	0.0009	0.0009	0.0008	0.0007
0.0081	0.0081	0.0079	0.0076	0.0077	0.0075	0.0076	0.0077	0.0073	0.0071	0.0068
0.0046	0.0047	0.0045	0.0043	0.0044	0.0043	0.0044	0.0044	0.0042	0.0043	0.0041
0.0020	0.0022	0.0020	0.0019	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0019
0.0076	0.0082	0.0079	0.0073	0.0073	0.0074	0.0074	0.0071	0.0070	0.0070	0.0067
0.0016	0.0015	0.0015	0.0012	0.0012	0.0012	0.0013	0.0012	0.0009	0.0011	0.0013
0.0016	0.0016	0.0016	0.0016	0.0017	0.0015	0.0013	0.0015	0.0015	0.0016	0.0017

185	184	183	182	181	180	179	178	177	176	175
1857	1858	1858	1859	1859	1860	1860	1861	1861	1862	1863
0.3550	0.3450	0.3350	0.3350	0.3650	0.4200	0.4400	0.3750	0.2850	0.3200	0.3500
2.2705	2.4926	2.4713	2.4584	2.2715	2.1023	2.1075	2.0213	2.0194	1.9794	2.0049
0.0480	0.0492	0.0461	0.0486	0.0462	0.0426	0.0462	0.0508	0.0506	0.0439	0.0408
0.0784	0.0494	0.0578	0.0372	0.0225	0.0431	0.0574	0.0677	0.0467	0.0252	0.0345
0.0294	0.0320	0.0308	0.0351	0.0364	0.0308	0.0372	0.0378	0.0285	0.0316	0.0398
0.2991	0.3123	0.3083	0.3284	0.3287	0.3100	0.3136	0.3027	0.2938	0.2918	0.3011
0.1980	0.2231	0.2489	0.2375	0.1952	0.1898	0.2086	0.2055	0.1984	0.1895	0.1914
0.0275	0.0236	0.0233	0.0272	0.0281	0.0265	0.0273	0.0265	0.0257	0.0273	0.0303
3.1252	2.9913	3.0596	3.2335	3.2749	3.3263	3.3650	3.3798	3.3228	3.2571	3.3132
0.0091	0.0090	0.0092	0.0086	0.0082	0.0090	0.0090	0.0092	0.0092	0.0090	0.0088
0.0008	0.0009	0.0008	0.0009	0.0010	0.0010	0.0010	0.0009	0.0010	0.0009	0.0009
0.0077	0.0077	0.0079	0.0084	0.0086	0.0083	0.0082	0.0083	0.0084	0.0081	0.0081
0.0044	0.0045	0.0047	0.0044	0.0042	0.0044	0.0046	0.0046	0.0045	0.0044	0.0045
0.0020	0.0022	0.0023	0.0021	0.0017	0.0020	0.0022	0.0021	0.0020	0.0021	0.0020
0.0079	0.0089	0.0094	0.0090	0.0076	0.0072	0.0077	0.0076	0.0075	0.0073	0.0073
0.0013	0.0015	0.0016	0.0018	0.0016	0.0013	0.0014	0.0015	0.0014	0.0013	0.0016
0.0016	0.0016	0.0019	0.0016	0.0015	0.0016	0.0014	0.0014	0.0014	0.0016	0.0016

196	195	194	193	192	191	190	189	188	187	186
1852	1852	1853	1854	1854	1854	1855	1855	1856	1856.5	1857
0.3200	0.2800	0.3100	0.3900	0.3400	0.3550	0.3600	0.2900	0.3500	0.3700	0.3300
2.0971	1.9851	2.0182	2.0726	1.9860	2.0774	2.0318	1.8030	1.9502	2.1946	2.1560
0.0482	0.0436	0.0411	0.0401	0.0426	0.0483	0.0495	0.0429	0.0408	0.0456	0.0456
0.0423	0.0347	0.0477	0.0509	0.0787	0.0999	0.0579	0.0403	0.0418	0.0540	0.0916
0.0354	0.0365	0.0451	0.0409	0.0346	0.0369	0.0384	0.0389	0.0347	0.0311	0.0281
0.4119	0.3837	0.3477	0.3350	0.3418	0.3411	0.3231	0.3041	0.3045	0.3105	0.2979
0.2037	0.2117	0.2143	0.2041	0.1959	0.1970	0.1963	0.1863	0.1903	0.2049	0.2009
0.0480	0.0411	0.0343	0.0293	0.0336	0.0322	0.0305	0.0336	0.0362	0.0347	0.0311
3.3097	3.1425	3.1795	3.1170	3.0671	3.0246	3.1912	3.3414	3.4174	3.4022	3.2039
0.0098	0.0101	0.0104	0.0099	0.0102	0.0103	0.0094	0.0091	0.0088	0.0091	0.0092
0.0010	0.0008	0.0008	0.0010	0.0010	0.0010	0.0010	0.0009	0.0007	0.0009	0.0009
0.0079	0.0079	0.0079	0.0076	0.0076	0.0077	0.0078	0.0077	0.0077	0.0078	0.0077
0.0046	0.0048	0.0049	0.0046	0.0045	0.0044	0.0043	0.0044	0.0044	0.0043	0.0042
0.0022	0.0023	0.0022	0.0021	0.0020	0.0020	0.0020	0.0020	0.0021	0.0022	0.0020
0.0084	0.0085	0.0084	0.0078	0.0073	0.0074	0.0076	0.0076	0.0077	0.0080	0.0076
0.0014	0.0015	0.0016	0.0017	0.0015	0.0013	0.0015	0.0015	0.0012	0.0012	0.0013
0.0017	0.0019	0.0021	0.0017	0.0015	0.0017	0.0016	0.0016	0.0018	0.0017	0.0017

207	206	205	204	203	202	201	200	199	198	197
1847	1847	1847	1848	1848	1849	1849	1850	1850	1851	1852
0.3150	0.3600	0.3300	0.3150	0.3500	0.3400	0.2850	0.3650	0.4150	0.3200	0.3100
2.0037	2.0638	2.0367	2.0741	2.0578	2.1827	2.1790	2.2211	2.4121	2.2616	2.1287
0.0456	0.0422	0.0419	0.0438	0.0406	0.0422	0.0477	0.0503	0.0526	0.0479	0.0459
0.0572	0.0738	0.0703	0.0813	0.1066	0.0990	0.0657	0.0187	0.0466	0.0683	0.0596
0.0346	0.0330	0.0379	0.0394	0.0314	0.0318	0.0328	0.0264	0.0282	0.0353	0.0370
0.3126	0.3346	0.3734	0.3613	0.3103	0.3046	0.3913	0.5363	0.5511	0.4639	0.4253
0.1996	0.2075	0.2132	0.2043	0.1932	0.2107	0.2138	0.2089	0.2206	0.2173	0.2038
0.0276	0.0281	0.0377	0.0333	0.0214	0.0192	0.0334	0.0698	0.0812	0.0642	0.0557
3.0053	3.0718	3.2215	3.2414	3.2172	3.1718	3.1724	3.5416	3.6485	3.4959	3.5259
0.0095	0.0097	0.0100	0.0099	0.0095	0.0098	0.0093	0.0080	0.0087	0.0097	0.0098
0.0008	0.0009	0.0009	0.0007	0.0008	0.0010	0.0011	0.0009	0.0009	0.0011	0.0011
0.0076	0.0076	0.0078	0.0080	0.0080	0.0078	0.0075	0.0073	0.0073	0.0076	0.0078
0.0044	0.0045	0.0050	0.0050	0.0045	0.0044	0.0045	0.0046	0.0047	0.0046	0.0045
0.0018	0.0019	0.0022	0.0022	0.0019	0.0020	0.0021	0.0022	0.0023	0.0023	0.0022
0.0074	0.0082	0.0093	0.0087	0.0071	0.0072	0.0084	0.0096	0.0096	0.0089	0.0085
0.0014	0.0015	0.0016	0.0016	0.0014	0.0012	0.0012	0.0015	0.0017	0.0016	0.0014
0.0017	0.0017	0.0018	0.0020	0.0016	0.0014	0.0014	0.0015	0.0015	0.0016	0.0017

218	217	216	215	214	213	212	211	210	209	208
1841	1841	1842	1842	1843	1843	1844	1844.5	1845	1845.5	1846
0.2700	0.3200	0.3450	0.3200	0.2700	0.2800	0.3800			0.2750	0.3050
1.8360	1.8280	1.9598	2.0516	2.1411	2.1059	2.3008	2.1592	1.8348	2.0131	2.0340
0.0369	0.0417	0.0414	0.0392	0.0426	0.0441	0.0480	0.0495	0.0438	0.0419	0.0453
0.1559	0.1351	0.1284	0.0694	0.0000	0.0588	0.0931	0.0536	0.0343	0.0392	0.0630
0.0297	0.0331	0.0317	0.0300	0.0404	0.0461	0.0379	0.0395	0.0400	0.0476	0.0454
0.2920	0.3091	0.3105	0.3232	0.3247	0.3033	0.3165	0.3393	0.3325	0.3424	0.3363
0.1921	0.2029	0.2116	0.2125	0.2057	0.2016	0.2121	0.2059	0.1935	0.2021	0.2016
0.0268	0.0321	0.0314	0.0335	0.0428	0.0349	0.0275	0.0398	0.0398	0.0299	0.0285
3.3511	3.4234	3.3670	3.2702	3.0815	3.1045	3.1771	3.2228	3.2016	3.1141	3.1019
0.0095	0.0097	0.0094	0.0108	0.0108	0.0095	0.0094	0.0090	0.0091	0.0100	0.0101
0.0009	0.0010	0.0010	0.0008	0.0008	0.0008	0.0008	0.0009	0.0009	0.0010	0.0009
0.0082	0.0084	0.0085	0.0085	0.0078	0.0079	0.0083	0.0079	0.0075	0.0077	0.0076
0.0045	0.0049	0.0049	0.0048	0.0046	0.0044	0.0045	0.0045	0.0044	0.0046	0.0046
0.0019	0.0019	0.0020	0.0022	0.0021	0.0019	0.0020	0.0021	0.0021	0.0021	0.0020
0.0071	0.0074	0.0077	0.0082	0.0082	0.0080	0.0081	0.0079	0.0078	0.0082	0.0078
0.0013	0.0013	0.0014	0.0015	0.0014	0.0013	0.0014	0.0014	0.0015	0.0016	0.0015
0.0017	0.0018	0.0017	0.0020	0.0017	0.0014	0.0016	0.0015	0.0013	0.0014	0.0015

229	228	227	226	225	224	223	222	221	220	219
1835	1836	1836	1836	1837	1837	1838	1838	1839	1840	1840
0.3050	0.2600	0.2050	0.2700	0.3650	0.3600	0.3650	0.4000	0.4200	0.3300	0.2450
1.9028	1.9666	1.9964	2.0456	2.0657	2.0531	2.2432	2.4469	2.4187	2.1001	1.9256
0.0433	0.0395	0.0416	0.0459	0.0469	0.0462	0.0468	0.0470	0.0486	0.0501	0.0426
0.1249	0.1387	0.1485	0.1510	0.1162	0.0996	0.1168	0.1610	0.1432	0.1534	0.1834
0.0392	0.0425	0.0377	0.0330	0.0367	0.0397	0.0385	0.0324	0.0341	0.0335	0.0258
0.2788	0.2891	0.2993	0.3024	0.2964	0.3139	0.3169	0.3018	0.2968	0.2902	0.2860
0.2138	0.2159	0.2013	0.2070	0.2057	0.2041	0.2125	0.2165	0.2153	0.1989	0.1903
0.0294	0.0309	0.0297	0.0279	0.0304	0.0327	0.0295	0.0291	0.0248	0.0233	0.0259
2.9506	2.8513	3.0704	3.3947	3.3193	3.2916	3.3543	3.3525	3.3405	3.2678	3.2384
0.0088	0.0088	0.0088	0.0092	0.0090	0.0087	0.0094	0.0093	0.0088	0.0088	0.0090
0.0006	0.0007	0.0009	0.0007	0.0007	0.0008	0.0009	0.0009	0.0009	0.0009	0.0009
0.0071	0.0074	0.0077	0.0082	0.0081	0.0079	0.0081	0.0081	0.0082	0.0081	0.0078
0.0043	0.0043	0.0043	0.0043	0.0042	0.0043	0.0047	0.0046	0.0044	0.0043	0.0042
0.0021	0.0020	0.0020	0.0020	0.0020	0.0019	0.0019	0.0020	0.0020	0.0020	0.0018
0.0087	0.0089	0.0081	0.0078	0.0080	0.0081	0.0084	0.0082	0.0079	0.0075	0.0070
0.0013	0.0014	0.0015	0.0015	0.0014	0.0014	0.0017	0.0016	0.0014	0.0014	0.0014
0.0017	0.0016	0.0015	0.0018	0.0017	0.0015	0.0017	0.0015	0.0015	0.0016	0.0015

240	239	238	237	236	235	234	233	232	231	230
1829	1830	1830	1831	1832	1832	1833	1833	1834	1834	1835
0.3200	0.3150	0.2650	0.3300	0.3500	0.3700	0.3700	0.3050	0.2700	0.2900	0.3100
1.9749	1.9258	2.0073	2.3235	2.2105	1.9265	1.9442	1.9315	1.8002	1.8482	1.9546
0.0416	0.0406	0.0421	0.0435	0.0412	0.0428	0.0452	0.0410	0.0395	0.0411	0.0434
0.1062	0.1182	0.1162	0.0889	0.0870	0.1004	0.0980	0.1206	0.1343	0.1069	0.0921
0.0328	0.0368	0.0358	0.0402	0.0393	0.0335	0.0372	0.0376	0.0402	0.0392	0.0363
0.3473	0.3452	0.3405	0.3258	0.3014	0.3010	0.3005	0.2873	0.2765	0.2768	0.2794
0.2054	0.2102	0.2094	0.2346	0.2420	0.2188	0.2039	0.1974	0.1942	0.1973	0.2033
0.0426	0.0443	0.0484	0.0354	0.0287	0.0372	0.0340	0.0306	0.0344	0.0350	0.0300
3.0444	3.1765	3.3144	3.2795	3.1198	3.0562	2.9910	3.1094	3.1234	3.0797	3.0889
0.0081	0.0083	0.0087	0.0107	0.0108	0.0094	0.0096	0.0095	0.0100	0.0098	0.0089
0.0008	0.0007	0.0008	0.0010	0.0009	0.0008	0.0009	0.0008	0.0007	0.0007	0.0007
0.0075	0.0075	0.0075	0.0082	0.0083	0.0079	0.0079	0.0076	0.0073	0.0073	0.0070
0.0044	0.0046	0.0045	0.0048	0.0050	0.0046	0.0045	0.0043	0.0043	0.0043	0.0043
0.0020	0.0021	0.0021	0.0023	0.0024	0.0022	0.0021	0.0021	0.0021	0.0020	0.0021
0.0084	0.0089	0.0086	0.0105	0.0108	0.0092	0.0087	0.0086	0.0087	0.0087	0.0087
0.0015	0.0015	0.0014	0.0017	0.0017	0.0015	0.0015	0.0014	0.0016	0.0015	0.0013
0.0015	0.0016	0.0015	0.0017	0.0020	0.0018	0.0018	0.0019	0.0020	0.0020	0.0017

251	250	249	248	247	246	245	244	243	242	241
1823	1824	1824	1825	1825	1826	1826	1827	1828	1828	1829
0.4200	0.4400	0.3550	0.3250	0.3850	0.2850	0.2200	0.2850	0.3650	0.3900	0.3100
2.2494	2.2046	2.0277	1.9904	2.0162	1.8087	1.8800	2.0536	2.0129	2.0334	2.0479
0.0407	0.0446	0.0425	0.0437	0.0470	0.0632	0.0628	0.0435	0.0373	0.0358	0.0404
0.0918	0.0977	0.1095	0.1189	0.1274	0.1316	0.1177	0.1174	0.1193	0.1211	0.1083
0.0370	0.0435	0.0441	0.0393	0.0377	0.0365	0.0374	0.0398	0.0371	0.0381	0.0363
0.2887	0.3032	0.3071	0.3001	0.3037	0.2985	0.2979	0.2909	0.2948	0.3213	0.3393
0.2132	0.2112	0.2019	0.1844	0.1883	0.1793	0.1790	0.1901	0.1969	0.2009	0.2011
0.0363	0.0384	0.0462	0.0467	0.0463	0.0488	0.0446	0.0279	0.0236	0.0343	0.0402
3.0259	3.0792	3.2061	3.1910	3.2528	3.5097	3.3090	3.0103	2.9059	2.9617	3.0363
0.0074	0.0079	0.0080	0.0081	0.0084	0.0078	0.0082	0.0081	0.0078	0.0080	0.0080
0.0007	0.0008	0.0008	0.0006	0.0006	0.0007	0.0007	0.0008	0.0009	0.0009	0.0007
0.0074	0.0078	0.0080	0.0075	0.0074	0.0074	0.0075	0.0075	0.0075	0.0075	0.0075
0.0044	0.0044	0.0045	0.0045	0.0045	0.0043	0.0043	0.0042	0.0040	0.0041	0.0043
0.0020	0.0021	0.0021	0.0019	0.0020	0.0020	0.0019	0.0019	0.0019	0.0021	0.0020
0.0098	0.0094	0.0093	0.0087	0.0081	0.0078	0.0077	0.0078	0.0079	0.0078	0.0078
0.0016	0.0014	0.0013	0.0015	0.0014	0.0012	0.0012	0.0013	0.0014	0.0012	0.0013
0.0014	0.0014	0.0015	0.0017	0.0016	0.0015	0.0016	0.0015	0.0013	0.0014	0.0016

262	261	260	259	258	257	256	255	254	253	252
1818	1818	1819	1819	1820	1820	1821	1821	1822	1822	1823
0.5800	0.6250	0.6600	0.6200	0.5550	0.4700	0.5000	0.5350	0.5400	0.5500	0.4750
2.7845	2.9422	3.1165	2.9072	2.6531	2.5165	2.5383	2.4486	2.3204	2.4214	2.3881
0.0491	0.0500	0.0471	0.0460	0.0431	0.0443	0.0462	0.0459	0.0478	0.0460	0.0401
0.0826	0.0988	0.0926	0.0535	0.0497	0.0727	0.0992	0.1103	0.1231	0.1236	0.0955
0.0410	0.0373	0.0244	0.0330	0.0344	0.0304	0.0351	0.0325	0.0305	0.0340	0.0349
0.3040	0.3012	0.3092	0.3082	0.3176	0.3212	0.3138	0.3061	0.3069	0.3074	0.2956
0.2152	0.2219	0.2361	0.2371	0.2232	0.2093	0.2034	0.2128	0.2182	0.2088	0.2145
0.0404	0.0397	0.0392	0.0411	0.0441	0.0410	0.0400	0.0417	0.0469	0.0461	0.0405
3.4044	3.4325	3.2670	3.1326	3.0571	3.0103	3.1199	3.2118	3.1672	3.1433	3.0813
0.0075	0.0074	0.0073	0.0077	0.0076	0.0074	0.0074	0.0078	0.0080	0.0074	0.0073
0.0006	0.0007	0.0007	0.0008	0.0007	0.0006	0.0006	0.0006	0.0007	0.0007	0.0007
0.0081	0.0083	0.0082	0.0080	0.0079	0.0077	0.0077	0.0078	0.0075	0.0072	0.0073
0.0046	0.0048	0.0047	0.0046	0.0046	0.0045	0.0046	0.0047	0.0046	0.0044	0.0045
0.0019	0.0020	0.0021	0.0022	0.0021	0.0021	0.0022	0.0023	0.0022	0.0020	0.0020
0.0089	0.0089	0.0097	0.0100	0.0093	0.0092	0.0093	0.0094	0.0092	0.0087	0.0095
0.0015	0.0017	0.0017	0.0016	0.0016	0.0016	0.0016	0.0016	0.0015	0.0015	0.0016
0.0014	0.0015	0.0014	0.0012	0.0012	0.0012	0.0014	0.0015	0.0014	0.0013	0.0014

273	272	271	270	269	268	267	266	265	264	263
1812	1812	1813	1813	1814	1814	1815	1815	1816	1817	1817
0.6050	0.6000	0.6200	0.5750	0.5600	0.5700	0.5800	0.5750	0.5750	0.5600	0.5700
2.7449	2.8217	2.6459	2.5196	2.6742	2.8025	2.7556	2.8761	3.0662	2.8715	2.7383
0.0452	0.0470	0.0447	0.0429	0.0452	0.0450	0.0440	0.0471	0.0518	0.0508	0.0457
0.0851	0.0564	0.0538	0.0805	0.1263	0.0998	0.1160	0.1329	0.0755	0.0685	0.0911
0.0245	0.0266	0.0304	0.0277	0.0255	0.0276	0.0334	0.0331	0.0262	0.0397	0.0415
0.2835	0.2984	0.2932	0.3000	0.2983	0.2917	0.2955	0.3076	0.3255	0.3170	0.3102
0.2245	0.2269	0.2168	0.2079	0.1980	0.2050	0.2240	0.2275	0.2376	0.2431	0.2273
0.0218	0.0297	0.0418	0.0479	0.0426	0.0396	0.0441	0.0484	0.0365	0.0347	0.0456
2.8252	2.9510	3.0796	3.1100	3.0500	3.0147	3.2345	3.2674	3.1170	3.2195	3.3555
0.0076	0.0076	0.0082	0.0083	0.0073	0.0074	0.0075	0.0071	0.0075	0.0082	0.0078
0.0007	0.0008	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0007	0.0008	0.0007
0.0081	0.0077	0.0078	0.0077	0.0076	0.0078	0.0081	0.0080	0.0081	0.0082	0.0080
0.0048	0.0046	0.0045	0.0042	0.0043	0.0045	0.0044	0.0044	0.0048	0.0048	0.0046
0.0021	0.0021	0.0020	0.0020	0.0021	0.0022	0.0021	0.0022	0.0022	0.0023	0.0021
0.0081	0.0090	0.0094	0.0087	0.0085	0.0085	0.0082	0.0087	0.0095	0.0092	0.0088
0.0017	0.0017	0.0017	0.0015	0.0012	0.0012	0.0014	0.0016	0.0018	0.0019	0.0015
0.0012	0.0012	0.0014	0.0013	0.0013	0.0013	0.0013	0.0012	0.0012	0.0014	0.0013

284	283	282	281	280	279	278	277	276	275	274
1795	1800	1805	1806	1807	1808	1808.5	1809	1810	1810	1811
0.5050	0.5150	0.4700	0.4050	0.3450	0.3400	0.3550	0.4950	0.6450	0.5750	0.5700
2.7160	2.4795	2.3772	2.3670	2.4009	2.4015	2.4807	2.7236	3.0852	3.0247	2.6643
0.0460	0.0429	0.0450	0.0431	0.0407	0.0432	0.0471	0.0493	0.0522	0.0542	0.0479
0.0323	0.0685	0.1099	0.1221	0.0982	0.0643	0.0401	0.0467	0.0723	0.0804	0.0998
0.0316	0.0303	0.0372	0.0360	0.0375	0.0397	0.0387	0.0347	0.0267	0.0287	0.0273
0.3029	0.2940	0.2835	0.2949	0.3081	0.3156	0.3307	0.3170	0.3023	0.2960	0.2758
0.2491	0.2391	0.2165	0.2203	0.2285	0.2200	0.2206	0.2182	0.2248	0.2188	0.2085
0.0297	0.0266	0.0214	0.0230	0.0242	0.0277	0.0347	0.0290	0.0237	0.0256	0.0228
2.8492	2.8649	2.8717	2.8959	2.7929	2.7745	2.9801	2.9419	2.8803	2.8694	2.7668
0.0074	0.0079	0.0075	0.0070	0.0072	0.0073	0.0076	0.0073	0.0066	0.0065	0.0069
0.0004	0.0009	0.0009	0.0008	0.0007	0.0006	0.0008	0.0009	0.0008	0.0007	0.0006
0.0083	0.0083	0.0081	0.0079	0.0076	0.0074	0.0075	0.0077	0.0080	0.0081	0.0081
0.0051	0.0051	0.0051	0.0048	0.0045	0.0044	0.0045	0.0047	0.0048	0.0047	0.0048
0.0023	0.0024	0.0021	0.0021	0.0022	0.0021	0.0022	0.0022	0.0020	0.0020	0.0019
0.0100	0.0094	0.0086	0.0094	0.0100	0.0090	0.0092	0.0090	0.0084	0.0082	0.0077
0.0021	0.0018	0.0016	0.0015	0.0015	0.0014	0.0018	0.0018	0.0016	0.0016	0.0017
0.0016	0.0015	0.0012	0.0010	0.0012	0.0012	0.0013	0.0013	0.0012	0.0010	0.0012

295	294	293	292	291	290	289	288	287	286	285
1769	1770	1772	1774	1776	1778	1779.5	1781	1783	1786	1790
0.2550	0.3250	0.3150	0.2900	0.2489	0.2539	0.2900	0.2650	0.3000	0.3450	0.4100
1.6343	2.0200	1.8441	1.7640	1.5521	1.3954	1.6365	1.6594	1.6960	1.6792	2.1969
0.0443	0.0450	0.0404	0.0399	0.0671	0.0650	0.0408	0.0406	0.0411	0.0402	0.0428
0.0828	0.0772	0.0657	0.0598	0.0521	0.0683	0.1132	0.1409	0.1307	0.0796	0.0467
0.0443	0.0340	0.0348	0.0346	0.0362	0.0429	0.0422	0.0354	0.0337	0.0362	0.0371
0.2839	0.2990	0.2624	0.2719	0.2581	0.2488	0.2770	0.2748	0.2766	0.2802	0.2936
0.1526	0.1855	0.1811	0.1900	0.1411	0.1232	0.1675	0.1610	0.1614	0.1632	0.1999
0.0276	0.0314	0.0314	0.0362	0.0522	0.0585	0.0510	0.0482	0.0522	0.0730	0.0594
2.3680	2.6242	2.7591	2.7066	3.0718	3.0762	2.7635	2.7100	2.6263	2.7679	2.7698
0.0062	0.0064	0.0064	0.0064	0.0054	0.0053	0.0062	0.0061	0.0067	0.0068	0.0068
0.0005	0.0005	0.0006	0.0007	0.0006	0.0007	0.0007	0.0007	0.0006	0.0006	0.0003
0.0064	0.0070	0.0069	0.0069	0.0054	0.0054	0.0067	0.0065	0.0065	0.0062	0.0070
0.0038	0.0041	0.0042	0.0041	0.0033	0.0033	0.0039	0.0038	0.0038	0.0036	0.0043
0.0017	0.0020	0.0021	0.0019	0.0015	0.0016	0.0018	0.0017	0.0017	0.0016	0.0019
0.0065	0.0076	0.0079	0.0079	0.0058	0.0056	0.0069	0.0067	0.0069	0.0065	0.0080
0.0011	0.0012	0.0014	0.0013	0.0010	0.0009	0.0010	0.0013	0.0012	0.0010	0.0018
0.0011	0.0013	0.0013	0.0010	0.0008	0.0008	0.0009	0.0010	0.0011	0.0010	0.0013

306	305	304	303	302	301	300	299	298	297	296
1734	1738	1741	1745	1748	1751	1754	1758	1761	1765	1767
0.2136	0.2786	0.2918	0.2184	0.2498	0.3097	0.2618	0.2553	0.3050	0.2732	0.2182
0.9322	1.0320	1.2766	1.4300	1.5954	1.4926	1.3288	1.5399	1.8282	1.6720	1.3957
0.0316	0.0288	0.0433	0.0450	0.0345	0.0622	0.0825	0.0585	0.0444	0.0447	0.0412
0.0169	0.0227	0.0321	0.0710	0.0793	0.0798	0.0882	0.0997	0.0921	0.0956	0.1257
0.0449	0.0433	0.0384	0.0356	0.0347	0.0356	0.0351	0.0325	0.0328	0.0386	0.0483
0.2195	0.2314	0.2323	0.2457	0.2590	0.2456	0.2277	0.2434	0.2644	0.2618	0.2546
0.0518	0.0583	0.1056	0.1360	0.1401	0.1158	0.1029	0.1273	0.1824	0.1727	0.1290
0.0087	0.0089	0.0210	0.0233	0.0144	0.0202	0.0266	0.0229	0.0225	0.0254	0.0235
1.9147	1.8511	2.1821	2.4157	2.0777	2.2203	2.4386	2.3521	2.3689	2.2425	2.1067
0.0041	0.0045	0.0058	0.0067	0.0063	0.0055	0.0050	0.0055	0.0066	0.0059	0.0055
0.0006	0.0007	0.0004	0.0002	0.0005	0.0008	0.0010	0.0007	0.0005	0.0007	0.0007
0.0046	0.0046	0.0053	0.0061	0.0061	0.0056	0.0052	0.0058	0.0067	0.0060	0.0055
0.0028	0.0029	0.0031	0.0035	0.0034	0.0031	0.0030	0.0034	0.0040	0.0037	0.0033
0.0013	0.0014	0.0015	0.0016	0.0015	0.0016	0.0016	0.0017	0.0019	0.0017	0.0014
0.0038	0.0039	0.0046	0.0053	0.0052	0.0052	0.0051	0.0057	0.0070	0.0064	0.0054
0.0011	0.0011	0.0008	0.0010	0.0011	0.0010	0.0009	0.0010	0.0012	0.0011	0.0011
0.0007	0.0007	0.0008	0.0010	0.0009	0.0006	0.0005	0.0009	0.0012	0.0010	0.0010

317	316	315	314	313	312	311	310	309	308	307
1720	1721	1723	1724	1725	1726	1727	1729	1730	1731	1733
0.2009	0.2100	0.2300	0.2350	0.2400	0.2400	0.2400				
1.3667	1.6597	1.5649	1.3889	1.4180	1.4466	1.2774	1.2181	1.1905	1.1595	1.1231
0.0286	0.0301	0.0350	0.0372	0.0329	0.0327	0.0386	0.0335	0.0284	0.0305	0.0319
0.0342	0.0903	0.0867	0.0241	0.0261	0.0444	0.0400	0.0230	0.0224	0.0258	0.0228
0.0472	0.0433	0.0470	0.0451	0.0398	0.0403	0.0427	0.0449	0.0492	0.0473	0.0441
0.2409	0.2876	0.2989	0.2920	0.2724	0.2538	0.2410	0.2378	0.2432	0.2404	0.2252
0.1379	0.1771	0.1777	0.1521	0.1470	0.1353	0.1141	0.1083	0.1000	0.0938	0.0873
0.0269	0.0329	0.0308	0.0286	0.0176	0.0096	0.0137	0.0223	0.0213	0.0145	0.0115
2.5452	2.7244	2.6148	2.3122	2.2127	2.0821	2.0531	2.0010	1.8162	1.7209	1.7335
0.0063	0.0083	0.0086	0.0076	0.0071	0.0065	0.0062	0.0056	0.0052	0.0051	0.0049
0.0007	0.0008	0.0009	0.0010	0.0005	0.0003	0.0007	0.0006	0.0005	0.0004	0.0004
0.0060	0.0070	0.0074	0.0071	0.0070	0.0063	0.0056	0.0054	0.0050	0.0049	0.0049
0.0035	0.0041	0.0044	0.0043	0.0041	0.0036	0.0032	0.0032	0.0032	0.0030	0.0028
0.0015	0.0019	0.0020	0.0019	0.0018	0.0016	0.0014	0.0015	0.0014	0.0014	0.0013
0.0051	0.0072	0.0080	0.0067	0.0058	0.0052	0.0047	0.0045	0.0043	0.0042	0.0040
0.0009	0.0012	0.0016	0.0015	0.0012	0.0011	0.0010	0.0010	0.0010	0.0008	0.0007
0.0007	0.0010	0.0012	0.0011	0.0010	0.0009	0.0006	0.0006	0.0007	0.0008	0.0008

328	327	326	325	324	323	322	321	320	319	318
1706	1708	1709	1710	1711	1713	1714	1715	1716	1718	1719
0.2350	0.2300	0.2238	0.2138	0.2200	0.1953			0.2450	0.2900	0.2759
1.0624	0.9990	0.7985	1.0577	1.0634	0.9255	0.9551	0.9695	1.1054	1.1643	1.1072
0.0217	0.0223	0.0181	0.0199	0.0224	0.0211	0.0218	0.0207	0.0280	0.0309	0.0267
0.0233	0.0263	0.0337	0.0359	0.0486	0.0624	0.0529	0.0384	0.0255	0.0270	0.0364
0.0418	0.0423	0.0385	0.0409	0.0469	0.0430	0.0436	0.0470	0.0562	0.0554	0.0499
0.2742	0.2722	0.2360	0.2508	0.2438	0.2306	0.2360	0.2327	0.2431	0.2433	0.2216
0.1447	0.1535	0.1036	0.1282	0.1285	0.1004	0.1049	0.1007	0.0901	0.0898	0.1040
0.0133	0.0150	0.0101	0.0104	0.0132	0.0111	0.0078	0.0091	0.0095	0.0125	0.0177
2.0148	2.0759	1.9245	2.0490	1.9450	1.7695	1.7138	1.7279	2.0607	2.1768	2.2397
0.0063	0.0067	0.0057	0.0063	0.0063	0.0053	0.0052	0.0052	0.0054	0.0054	0.0055
0.0002	0.0003	0.0003	0.0003	0.0005	0.0005	0.0005	0.0005	0.0006	0.0006	0.0006
0.0061	0.0066	0.0056	0.0061	0.0062	0.0053	0.0051	0.0050	0.0051	0.0053	0.0055
0.0038	0.0042	0.0031	0.0032	0.0035	0.0031	0.0030	0.0029	0.0030	0.0031	0.0031
0.0017	0.0018	0.0014	0.0014	0.0016	0.0015	0.0014	0.0014	0.0014	0.0014	0.0014
0.0067	0.0071	0.0046	0.0052	0.0054	0.0046	0.0043	0.0042	0.0044	0.0045	0.0045
0.0010	0.0012	0.0006	0.0006	0.0010	0.0009	0.0009	0.0007	0.0011	0.0011	0.0007
0.0010	0.0011	0.0009	0.0009	0.0008	0.0006	0.0006	0.0007	0.0006	0.0007	0.0008

339	338	337	336	335	334	333	332	331	330	329
1693	1694	1695	1696	1698	1699	1700	1701	1703	1704	1705
0.3550	0.2964	0.2464	0.2150	0.2200				0.2300	0.2700	0.2650
1.6525	1.3561	1.3128	1.2611	1.1342	1.1108	1.1189	1.0678	1.0355	1.0832	0.9793
0.0366	0.0376	0.0353	0.0311	0.0311	0.0301	0.0301	0.0282	0.0241	0.0234	0.0212
0.0217	0.0268	0.0287	0.0309	0.0365	0.0351	0.0321	0.0416	0.0446	0.0350	0.0280
0.0431	0.0431	0.0404	0.0383	0.0414	0.0429	0.0427	0.0431	0.0393	0.0345	0.0383
0.2520	0.2477	0.2546	0.2523	0.2356	0.2265	0.2301	0.2250	0.2266	0.2328	0.2347
0.1804	0.1428	0.1315	0.1402	0.1184	0.1142	0.1268	0.1257	0.1286	0.1381	0.1164
0.0204	0.0167	0.0102	0.0099	0.0110	0.0120	0.0124	0.0133	0.0140	0.0131	0.0101
2.7798	2.4380	2.1272	2.1595	2.0798	2.0902	2.1220	2.2748	2.4701	2.3158	1.9217
0.0070	0.0067	0.0067	0.0069	0.0061	0.0055	0.0055	0.0059	0.0062	0.0065	0.0060
0.0003	0.0002	0.0007	0.0007	0.0004	0.0006	0.0006	0.0004	0.0005	0.0005	0.0004
0.0070	0.0063	0.0062	0.0063	0.0058	0.0058	0.0058	0.0058	0.0063	0.0065	0.0057
0.0042	0.0036	0.0034	0.0035	0.0033	0.0032	0.0032	0.0033	0.0035	0.0037	0.0033
0.0021	0.0019	0.0017	0.0016	0.0014	0.0014	0.0015	0.0015	0.0016	0.0018	0.0016
0.0076	0.0059	0.0051	0.0053	0.0051	0.0051	0.0053	0.0056	0.0059	0.0061	0.0052
0.0012	0.0011	0.0009	0.0009	0.0008	0.0007	0.0006	0.0007	0.0010	0.0011	0.0008
0.0011	0.0011	0.0009	0.0010	0.0010	0.0008	0.0007	0.0008	0.0007	0.0008	0.0009

350	349	348	347	346	345	344	343	342	341	340
1679	1680	1681	1683	1684	1685	1686	1688	1689	1690	1691
0.2900	0.3050			0.2398	0.2898	0.3200	0.2700			0.3400
1.6725	1.5527			1.3458	1.1463	1.2418	1.6572	1.7564	1.6734	1.7370
0.0467	0.0423			0.0458	0.0435	0.0376	0.0413	0.0346	0.0288	0.0338
0.0572	0.0561			0.0426	0.0413	0.0327	0.0246	0.0288	0.0437	0.0422
0.0429	0.0415			0.0362	0.0351	0.0389	0.0384	0.0430	0.0487	0.0458
0.2471	0.2432			0.2490	0.2809	0.2684	0.2494	0.2597	0.2600	0.2591
0.1562	0.1524	0.1707	0.1625	0.1415	0.1252	0.1366	0.1690	0.1790	0.1705	0.1749
0.0157	0.0157	0.0176	0.0302	0.0692	0.1538	0.1162	0.0226	0.0188	0.0158	0.0183
2.7959	2.5765	2.4182	2.7429	3.7989	5.3597	4.4596	2.5980	2.3900	2.3174	2.5411
0.0075	0.0073	0.0068	0.0062	0.0063	0.0057	0.0060	0.0070	0.0069	0.0065	0.0069
0.0005	0.0003	0.0000	0.0002	0.0002	0.0000	0.0002	0.0004	0.0004	0.0005	0.0005
0.0078	0.0072	0.0069	0.0065	0.0061	0.0054	0.0059	0.0073	0.0072	0.0072	0.0073
0.0043	0.0041	0.0041	0.0038	0.0035	0.0033	0.0035	0.0041	0.0042	0.0043	0.0044
0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0016	0.0018	0.0020	0.0019	0.0021
0.0069	0.0066	0.0062	0.0061	0.0061	0.0056	0.0058	0.0072	0.0077	0.0071	0.0075
0.0011	0.0009	0.0010	0.0011	0.0010	0.0010	0.0012	0.0013	0.0012	0.0014	0.0014
0.0010	0.0010	0.0011	0.0009	0.0008	0.0008	0.0008	0.0011	0.0010	0.0010	0.0010

361	360	359	358	357	356	355	354	353	352	351
1650	1653	1656	1659	1661	1664	1667	1670	1674	1676	1677
0.2639	0.2639	0.2950	0.2819	0.2669	0.3250	0.2850	0.2000	0.2800	0.3300	0.2750
1.3585	1.4161	1.5767	1.4776	1.4146	1.5670	1.5016	1.0440	1.3264	1.7879	1.8631
0.0384	0.0400	0.0384	0.0374	0.0353	0.0362	0.0325	0.0281	0.0317	0.0341	0.0404
0.0649	0.0706	0.0553	0.0514	0.0477	0.0323	0.0513	0.0893	0.0956	0.0853	0.0801
0.0393	0.0404	0.0420	0.0392	0.0326	0.0336	0.0354	0.0360	0.0447	0.0458	0.0416
0.2422	0.2563	0.2758	0.2602	0.2535	0.2523	0.2403	0.2096	0.2225	0.2578	0.2602
0.1314	0.1393	0.1561	0.1448	0.1242	0.1181	0.1276	0.0855	0.0847	0.1308	0.1508
0.0265	0.0239	0.0237	0.0322	0.0534	0.0405	0.0148	0.0158	0.0177	0.0171	0.0158
2.6778	2.6624	2.5519	2.6934	3.2539	3.0368	2.4083	2.4446	2.4733	2.4262	2.6760
0.0067	0.0073	0.0074	0.0066	0.0065	0.0061	0.0066	0.0060	0.0058	0.0067	0.0072
0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0005	0.0009	0.0009	0.0006	0.0005
0.0066	0.0067	0.0068	0.0067	0.0063	0.0063	0.0065	0.0059	0.0060	0.0068	0.0074
0.0036	0.0037	0.0038	0.0036	0.0034	0.0034	0.0035	0.0033	0.0033	0.0036	0.0040
0.0016	0.0016	0.0017	0.0017	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0017
0.0049	0.0057	0.0060	0.0054	0.0050	0.0049	0.0048	0.0042	0.0044	0.0050	0.0059
0.0007	0.0011	0.0010	0.0008	0.0010	0.0012	0.0011	0.0009	0.0009	0.0010	0.0012
0.0010	0.0011	0.0011	0.0010	0.0008	0.0008	0.0009	0.0008	0.0007	0.0009	0.0010

372	371	370	369	368	367	366	365	364	363	362
1615	1619	1622	1625	1628	1631	1634	1637	1640	1643	1646
0.2419	0.2503	0.2747	0.2200	0.1800	0.2050	0.2550	0.2350	0.2200	0.2800	0.2850
1.4227	1.5134	1.3535	1.2054	1.2347	1.1297	0.9859	1.0337	1.3786	1.7733	1.6862
0.0415	0.0400	0.0381	0.0389	0.0400	0.0370	0.0329	0.0336	0.0389	0.0459	0.0409
0.0445	0.0445	0.0433	0.0448	0.0458	0.0438	0.0394	0.0409	0.0419	0.0606	0.0689
0.0353	0.0361	0.0340	0.0418	0.0378	0.0373	0.0413	0.0415	0.0402	0.0337	0.0352
0.2295	0.2397	0.2395	0.2420	0.2525	0.2429	0.2369	0.2448	0.2516	0.2656	0.2639
0.1217	0.1169	0.1113	0.1143	0.1062	0.1015	0.0982	0.1053	0.1338	0.1445	0.1444
0.0141	0.0158	0.0176	0.0158	0.0193	0.0258	0.0304	0.0346	0.0326	0.0318	0.0324
2.2560	2.3127	2.2678	2.1255	2.0930	2.3522	2.4697	2.6133	2.7724	2.6971	2.6532
0.0058	0.0054	0.0054	0.0056	0.0060	0.0061	0.0058	0.0061	0.0066	0.0066	0.0069
0.0002	0.0002	0.0003	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0007	0.0005
0.0056	0.0056	0.0054	0.0053	0.0054	0.0058	0.0059	0.0060	0.0062	0.0064	0.0067
0.0032	0.0031	0.0031	0.0031	0.0031	0.0032	0.0033	0.0033	0.0036	0.0037	0.0036
0.0016	0.0014	0.0013	0.0015	0.0014	0.0014	0.0015	0.0016	0.0016	0.0017	0.0016
0.0050	0.0049	0.0045	0.0044	0.0044	0.0045	0.0048	0.0051	0.0057	0.0059	0.0054
0.0008	0.0008	0.0006	0.0008	0.0008	0.0007	0.0008	0.0010	0.0012	0.0011	0.0008
0.0010	0.0009	0.0009	0.0008	0.0007	0.0006	0.0008	0.0009	0.0008	0.0007	0.0008

383	382	381	380	379	378	377	376	375	374	373
1582	1585	1588	1591	1594	1597	1600	1603	1606	1609	1612
0.2350	0.1850	0.2150	0.2012	0.2012	0.2050	0.1700	0.1862			0.2491
1.3065	1.3004	1.2535	1.1144	1.2025	1.1489	1.1521	1.2052	1.0353	0.9864	1.1850
0.0366	0.0402	0.0336	0.0320	0.0361	0.0323	0.0267	0.0326	0.0330	0.0328	0.0392
0.0589	0.0626	0.0771	0.0609	0.0658	0.0789	0.0570	0.0527	0.0525	0.0644	0.0572
0.0454	0.0445	0.0447	0.0433	0.0422	0.0466	0.0486	0.0457	0.0405	0.0378	0.0341
0.2350	0.2400	0.2378	0.2279	0.2378	0.2427	0.2402	0.2364	0.2171	0.2089	0.2239
0.1054	0.1117	0.1214	0.1078	0.1159	0.1264	0.1188	0.1047	0.0831	0.0843	0.1121
0.0134	0.0162	0.0162	0.0155	0.0142	0.0117	0.0113	0.0130	0.0114	0.0123	0.0164
2.1111	2.1637	2.1261	1.9704	2.0163	2.0159	1.8949	1.9095	1.8541	1.9095	2.1400
0.0060	0.0067	0.0067	0.0065	0.0063	0.0060	0.0059	0.0057	0.0051	0.0050	0.0059
0.0005	0.0005	0.0005	0.0006	0.0004	0.0004	0.0004	0.0005	0.0007	0.0007	0.0003
0.0057	0.0061	0.0063	0.0058	0.0058	0.0060	0.0057	0.0052	0.0049	0.0050	0.0054
0.0031	0.0033	0.0034	0.0031	0.0032	0.0034	0.0033	0.0030	0.0028	0.0029	0.0031
0.0014	0.0013	0.0014	0.0014	0.0013	0.0014	0.0014	0.0013	0.0013	0.0014	0.0015
0.0045	0.0046	0.0048	0.0046	0.0046	0.0050	0.0052	0.0047	0.0044	0.0044	0.0046
0.0008	0.0007	0.0009	0.0009	0.0008	0.0007	0.0009	0.0008	0.0006	0.0009	0.0008
0.0009	0.0009	0.0007	0.0007	0.0007	0.0007	0.0008	0.0008	0.0009	0.0009	0.0009

394	393	392	391	390	389	388	387	386	385	384
1549	1552	1555	1558	1561	1564	1567	1570	1573	1576	1579
0.2150	0.1900	0.2216	0.2466	0.2100	0.2115			0.2650	0.2300	0.2700
1.3908	1.2642	1.2579	1.2472	1.1824	1.4463	1.4732	1.5222	1.6107	1.3866	1.3701
0.0316	0.0329	0.0334	0.0354	0.0363	0.0383	0.0375	0.0377	0.0392	0.0393	0.0355
0.0392	0.0312	0.0388	0.0365	0.0455	0.0629	0.0500	0.0453	0.0390	0.0396	0.0554
0.0413	0.0428	0.0369	0.0417	0.0438	0.0371	0.0386	0.0405	0.0386	0.0404	0.0441
0.2665	0.2590	0.2503	0.2509	0.2504	0.2490	0.2437	0.2569	0.2662	0.2559	0.2497
0.1378	0.1339	0.1293	0.1257	0.1165	0.1342	0.1450	0.1545	0.1518	0.1286	0.1227
0.0133	0.0143	0.0146	0.0155	0.0153	0.0147	0.0163	0.0166	0.0157	0.0159	0.0137
2.0342	2.0840	2.0842	2.0301	1.9985	2.2657	2.3837	2.3801	2.3248	2.2223	2.2418
0.0066	0.0061	0.0060	0.0060	0.0062	0.0063	0.0063	0.0066	0.0065	0.0063	0.0060
0.0006	0.0006	0.0006	0.0005	0.0004	0.0005	0.0006	0.0003	0.0000	0.0004	0.0006
0.0062	0.0059	0.0057	0.0056	0.0056	0.0059	0.0061	0.0069	0.0070	0.0062	0.0061
0.0035	0.0033	0.0031	0.0031	0.0032	0.0034	0.0035	0.0037	0.0038	0.0034	0.0033
0.0016	0.0016	0.0015	0.0014	0.0016	0.0017	0.0016	0.0017	0.0017	0.0015	0.0015
0.0060	0.0056	0.0053	0.0053	0.0053	0.0056	0.0056	0.0061	0.0063	0.0053	0.0048
0.0010	0.0009	0.0008	0.0009	0.0009	0.0007	0.0008	0.0009	0.0011	0.0010	0.0009
0.0006	0.0007	0.0010	0.0009	0.0009	0.0008	0.0007	0.0009	0.0010	0.0008	0.0008

405	404	403	402	401	400	399	398	397	396	395
1515.5	1519	1522	1525	1528	1531	1534	1537	1540	1543	1546
0.2600	0.2850	0.3028	0.2578	0.2650	0.2950	0.2700	0.2550	0.2372	0.1972	0.2100
1.3152	1.4264	1.4625	1.4869	1.5375	1.4595	1.4352	1.5357	1.5413	1.5855	1.5133
0.0332	0.0442	0.0502	0.0417	0.0386	0.0365	0.0353	0.0375	0.0358	0.0360	0.0328
0.0361	0.0319	0.0247	0.0249	0.0367	0.0650	0.0705	0.0552	0.0513	0.0490	0.0503
0.0407	0.0411	0.0415	0.0375	0.0400	0.0431	0.0389	0.0384	0.0383	0.0393	0.0379
0.2632	0.2665	0.2647	0.2593	0.2696	0.2691	0.2643	0.2657	0.2580	0.2620	0.2657
0.1223	0.1182	0.1209	0.1213	0.1373	0.1440	0.1409	0.1406	0.1325	0.1367	0.1376
0.0155	0.0141	0.0156	0.0166	0.0186	0.0187	0.0146	0.0160	0.0160	0.0138	0.0136
1.9793	2.0118	2.0996	2.1567	2.1449	2.1430	2.1001	2.0974	2.0475	2.0689	2.0673
0.0067	0.0064	0.0061	0.0066	0.0072	0.0070	0.0066	0.0063	0.0065	0.0067	0.0068
0.0005	0.0003	0.0000	0.0003	0.0005	0.0004	0.0005	0.0002	0.0002	0.0002	0.0003
0.0058	0.0054	0.0055	0.0058	0.0061	0.0062	0.0062	0.0062	0.0060	0.0061	0.0063
0.0034	0.0032	0.0031	0.0034	0.0037	0.0036	0.0035	0.0036	0.0034	0.0033	0.0035
0.0016	0.0015	0.0014	0.0015	0.0017	0.0017	0.0016	0.0015	0.0015	0.0017	0.0017
0.0057	0.0051	0.0050	0.0054	0.0059	0.0062	0.0062	0.0058	0.0054	0.0059	0.0062
0.0010	0.0010	0.0009	0.0010	0.0010	0.0008	0.0008	0.0008	0.0008	0.0009	0.0010
0.0007	0.0008	0.0010	0.0007	0.0007	0.0008	0.0008	0.0010	0.0009	0.0008	0.0008

416	415	414	413	412	411	410	409	408	407	406
1482	1485	1488	1491	1494	1497	1500	1503	1506	1509	1512.5
0.2350	0.2549	0.3049	0.2800	0.2104	0.2204	0.2576			0.2550	0.2550
1.7899	1.8180	1.9225	1.9115	1.4547	1.3065	1.4387	1.4267	1.3495	1.3938	1.3522
0.0371	0.0347	0.0327	0.0345	0.0300	0.0286	0.0322	0.0321	0.0341	0.0366	0.0348
0.0397	0.0393	0.0053	0.0199	0.0355	0.0323	0.0367	0.0329	0.0260	0.0227	0.0287
0.0390	0.0343	0.0322	0.0361	0.0402	0.0350	0.0332	0.0378	0.0415	0.0412	0.0403
0.2765	0.2870	0.2778	0.2783	0.2561	0.2514	0.2725	0.2799	0.2678	0.2594	0.2629
0.1558	0.1608	0.1695	0.1650	0.1392	0.1235	0.1329	0.1444	0.1299	0.1239	0.1336
0.0232	0.0230	0.0241	0.0232	0.0174	0.0220	0.0445	0.0525	0.0272	0.0112	0.0137
2.1525	2.1748	2.4584	2.2710	1.9601	2.0585	2.5398	2.7180	2.2488	2.0545	2.0449
0.0075	0.0076	0.0077	0.0070	0.0064	0.0061	0.0060	0.0057	0.0057	0.0060	0.0064
0.0003	0.0002	0.0005	0.0005	0.0004	0.0006	0.0006	0.0003	0.0000	0.0003	0.0005
0.0065	0.0067	0.0066	0.0061	0.0059	0.0057	0.0056	0.0056	0.0057	0.0057	0.0060
0.0039	0.0040	0.0038	0.0035	0.0033	0.0034	0.0035	0.0033	0.0034	0.0034	0.0035
0.0019	0.0018	0.0018	0.0017	0.0015	0.0014	0.0017	0.0018	0.0016	0.0015	0.0016
0.0071	0.0074	0.0070	0.0064	0.0059	0.0060	0.0066	0.0066	0.0063	0.0061	0.0060
0.0011	0.0009	0.0010	0.0009	0.0009	0.0010	0.0011	0.0010	0.0011	0.0011	0.0010
0.0010	0.0010	0.0010	0.0010	0.0007	0.0006	0.0009	0.0011	0.0010	0.0008	0.0008

427	426	425	424	423	422	421	420	419	418	417
1449	1452	1455	1458	1461	1464	1467	1470	1473	1476	1479
0.2905	0.3200			0.2600	0.2351	0.2204	0.2353	0.2600	0.2600	0.2350
1.5347	1.4898			1.6248	1.5086	1.2742	1.3754	1.6096	1.6480	1.6239
0.0360	0.0337			0.0354	0.0692	0.0683	0.0336	0.0337	0.0349	0.0351
0.0402	0.0435			0.0552	0.0394	0.0380	0.0456	0.0443	0.0333	0.0195
0.0424	0.0437			0.0387	0.0380	0.0345	0.0352	0.0390	0.0355	0.0374
0.2777	0.2786			0.2865	0.2636	0.2937	0.3163	0.2796	0.2699	0.2583
0.1352	0.1362	0.1330	0.1312	0.1433	0.1155	0.0709	0.0979	0.1373	0.1479	0.1532
0.0243	0.0184	0.0214	0.0236	0.0216	0.0299	0.0263	0.0222	0.0276	0.0247	0.0225
2.1636	2.0228	2.0347	2.0426	2.0299	2.4021	2.2148	1.9614	2.2557	2.2636	2.3009
0.0061	0.0061	0.0061	0.0065	0.0067	0.0056	0.0052	0.0061	0.0063	0.0065	0.0073
0.0003	0.0005	0.0005	0.0003	0.0002	0.0004	0.0004	0.0005	0.0005	0.0004	0.0005
0.0056	0.0057	0.0059	0.0058	0.0057	0.0050	0.0038	0.0045	0.0059	0.0060	0.0062
0.0034	0.0035	0.0037	0.0036	0.0035	0.0031	0.0026	0.0030	0.0036	0.0036	0.0037
0.0016	0.0016	0.0016	0.0017	0.0018	0.0016	0.0015	0.0015	0.0017	0.0017	0.0019
0.0062	0.0064	0.0067	0.0069	0.0072	0.0064	0.0051	0.0058	0.0068	0.0069	0.0070
0.0008	0.0008	0.0009	0.0009	0.0009	0.0009	0.0007	0.0009	0.0010	0.0009	0.0011
0.0009	0.0006	0.0007	0.0009	0.0010	0.0007	0.0006	0.0007	0.0008	0.0009	0.0009

438	437	436	435	434	433	432	431	430	429	428
1420	1422	1424.5	1427	1429	1432	1434	1437	1439	1442	1445
0.1916	0.1829	0.2520	0.2354	0.2184	0.2363	0.2206	0.2512	0.2957	0.1550	0.1405
1.3394	1.1769	1.2683	1.1427	1.1484	1.3520	1.2809	1.3168	1.3307	1.3514	1.5054
0.0299	0.0305	0.0313	0.0300	0.0289	0.0303	0.0313	0.0320	0.0327	0.0329	0.0363
0.0247	0.0222	0.0323	0.0261	0.0225	0.0342	0.0346	0.0387	0.0391	0.0380	0.0397
0.0423	0.0423	0.0416	0.0425	0.0401	0.0420	0.0457	0.0427	0.0394	0.0381	0.0393
0.2563	0.2524	0.2687	0.2415	0.2380	0.2600	0.2589	0.2659	0.2623	0.2598	0.2703
0.1239	0.1232	0.1242	0.0777	0.0725	0.1186	0.1139	0.1126	0.1228	0.1277	0.1320
0.0224	0.0233	0.0323	0.0215	0.0121	0.0228	0.0299	0.0308	0.0219	0.0161	0.0236
1.9840	2.0207	2.2097	1.7991	1.5519	1.9603	2.1211	2.1483	2.0070	1.9451	2.1496
0.0054	0.0055	0.0058	0.0040	0.0037	0.0054	0.0057	0.0055	0.0052	0.0059	0.0063
0.0004	0.0002	0.0000	0.0002	0.0004	0.0004	0.0002	0.0002	0.0003	0.0002	0.0000
0.0051	0.0054	0.0052	0.0033	0.0034	0.0053	0.0052	0.0049	0.0051	0.0055	0.0056
0.0032	0.0033	0.0031	0.0021	0.0023	0.0031	0.0031	0.0030	0.0030	0.0033	0.0035
0.0017	0.0016	0.0016	0.0013	0.0013	0.0015	0.0016	0.0017	0.0016	0.0016	0.0016
0.0067	0.0071	0.0066	0.0040	0.0040	0.0062	0.0065	0.0063	0.0061	0.0064	0.0064
0.0009	0.0011	0.0009	0.0008	0.0009	0.0009	0.0010	0.0010	0.0008	0.0007	0.0008
0.0008	0.0009	0.0009	0.0004	0.0004	0.0009	0.0010	0.0008	0.0007	0.0008	0.0010

449	448	447	446	445	444	443	442	441	440	439
1393	1396	1398	1400	1403	1405	1408	1410	1412	1415	1417
0.1274	0.1300	0.2497	0.2897	0.3050	0.2750	0.2500	0.2413	0.2521	0.2509	0.2477
0.9764	1.0691	1.6311	1.7102	1.5259	1.3794	1.3918	1.4416	1.3130	1.2663	1.4693
0.0314	0.0310	0.0384	0.0364	0.0341	0.0332	0.0337	0.0360	0.0295	0.0267	0.0299
0.0374	0.0357	0.0288	0.0350	0.0284	0.0274	0.0336	0.0342	0.0300	0.0260	0.0278
0.0411	0.0429	0.0429	0.0388	0.0378	0.0380	0.0428	0.0412	0.0409	0.0432	0.0395
0.2458	0.2333	0.2918	0.2879	0.2649	0.2538	0.2611	0.2771	0.2737	0.2667	0.2741
0.0597	0.0773	0.1573	0.1558	0.1347	0.1222	0.1288	0.1215	0.1103	0.1196	0.1280
0.0076	0.0057	0.0124	0.0122	0.0108	0.0124	0.0156	0.0187	0.0212	0.0230	0.0244
1.1531	1.1769	1.9817	1.8549	1.9591	2.0105	1.9526	1.9474	1.9777	2.0223	2.0427
0.0042	0.0040	0.0070	0.0064	0.0058	0.0054	0.0054	0.0056	0.0054	0.0053	0.0056
0.0002	0.0003	0.0004	0.0004	0.0005	0.0005	0.0004	0.0002	0.0003	0.0004	0.0004
0.0031	0.0031	0.0059	0.0056	0.0053	0.0052	0.0054	0.0054	0.0053	0.0051	0.0049
0.0022	0.0023	0.0036	0.0034	0.0032	0.0031	0.0032	0.0032	0.0031	0.0031	0.0031
0.0013	0.0015	0.0018	0.0016	0.0016	0.0016	0.0016	0.0015	0.0014	0.0015	0.0017
0.0033	0.0046	0.0079	0.0074	0.0066	0.0061	0.0065	0.0062	0.0055	0.0060	0.0065
0.0012	0.0014	0.0012	0.0008	0.0007	0.0009	0.0010	0.0010	0.0009	0.0009	0.0009
0.0004	0.0005	0.0010	0.0009	0.0007	0.0006	0.0007	0.0009	0.0008	0.0007	0.0007

460	459	458	457	456	455	454	453	452	451	450
1366	1369	1371	1374	1376	1379	1381	1384	1386	1389	1391
0.1806	0.2450	0.2394	0.2050	0.1900	0.1973	0.2173	0.2550	0.2850	0.2650	0.2624
1.4157	1.3285	1.3903	1.4922	1.4492	1.5495	1.7239	1.8294	1.9579	1.9110	1.6083
0.0362	0.0351	0.0348	0.0323	0.0492	0.0520	0.0434	0.0400	0.0356	0.0343	0.0339
0.0565	0.0457	0.0316	0.0405	0.0553	0.0594	0.0482	0.0544	0.0507	0.0388	0.0350
0.0458	0.0441	0.0407	0.0417	0.0395	0.0381	0.0399	0.0372	0.0372	0.0413	0.0421
0.2631	0.2570	0.2604	0.2831	0.2883	0.2813	0.2772	0.2701	0.2776	0.3019	0.3140
0.1254	0.1163	0.1158	0.1260	0.1338	0.1409	0.1462	0.1581	0.1576	0.1527	0.1360
0.0132	0.0101	0.0112	0.0143	0.0138	0.0140	0.0159	0.0124	0.0096	0.0162	0.0183
1.9905	1.9364	1.9627	2.0384	2.0267	2.0906	2.1848	2.2711	2.2399	2.1343	2.1012
0.0060	0.0056	0.0058	0.0061	0.0061	0.0065	0.0069	0.0071	0.0071	0.0071	0.0076
0.0003	0.0002	0.0004	0.0004	0.0004	0.0002	0.0002	0.0002	0.0002	0.0005	0.0005
0.0059	0.0053	0.0053	0.0058	0.0057	0.0062	0.0066	0.0068	0.0070	0.0070	0.0066
0.0034	0.0031	0.0031	0.0034	0.0034	0.0035	0.0036	0.0036	0.0040	0.0040	0.0037
0.0016	0.0015	0.0014	0.0015	0.0015	0.0015	0.0015	0.0015	0.0016	0.0016	0.0015
0.0058	0.0054	0.0054	0.0056	0.0055	0.0058	0.0058	0.0056	0.0059	0.0060	0.0057
0.0010	0.0009	0.0008	0.0007	0.0008	0.0009	0.0008	0.0008	0.0011	0.0010	0.0009
0.0007	0.0008	0.0007	0.0008	0.0008	0.0008	0.0009	0.0009	0.0009	0.0009	0.0008

471	470	469	468	467	466	465	464	463	462	461
1340	1342	1344	1346	1349	1351	1353	1355	1357	1360	1363
0.2600	0.3200	0.3150	0.2250	0.1750	0.1987	0.2119	0.2232	0.2400	0.2400	0.2000
1.5095	1.6252	2.2179	2.0129	1.6031	1.5567	1.4621	1.5432	1.4912	1.3775	1.4133
0.0404	0.0482	0.0382	0.0413	0.0418	0.0348	0.0330	0.0335	0.0363	0.0333	0.0352
0.0717	0.0700	0.0490	0.0279	0.0282	0.0378	0.0405	0.0441	0.0457	0.0478	0.0479
0.0379	0.0383	0.0353	0.0352	0.0391	0.0406	0.0371	0.0356	0.0393	0.0442	0.0446
0.3106	0.3219	0.3119	0.2794	0.2659	0.2649	0.2494	0.2477	0.2563	0.2582	0.2573
0.1286	0.1337	0.1764	0.1618	0.1320	0.1158	0.0974	0.1210	0.1341	0.1336	0.1295
0.0272	0.0300	0.0234	0.0128	0.0133	0.0113	0.0094	0.0122	0.0131	0.0122	0.0136
2.3444	2.3533	2.4063	2.3218	2.0764	1.8845	1.7703	1.9155	2.0571	2.0515	2.0301
0.0059	0.0067	0.0077	0.0070	0.0064	0.0061	0.0054	0.0055	0.0057	0.0062	0.0065
0.0007	0.0005	0.0002	0.0000	0.0002	0.0004	0.0005	0.0005	0.0002	0.0000	0.0003
0.0061	0.0065	0.0078	0.0074	0.0061	0.0054	0.0044	0.0050	0.0058	0.0060	0.0061
0.0034	0.0037	0.0043	0.0041	0.0036	0.0033	0.0027	0.0029	0.0034	0.0034	0.0035
0.0015	0.0016	0.0019	0.0019	0.0017	0.0015	0.0012	0.0012	0.0015	0.0016	0.0017
0.0053	0.0053	0.0067	0.0070	0.0061	0.0057	0.0045	0.0046	0.0056	0.0057	0.0059
0.0008	0.0012	0.0014	0.0013	0.0010	0.0010	0.0010	0.0009	0.0010	0.0011	0.0010
0.0007	0.0008	0.0011	0.0012	0.0009	0.0008	0.0006	0.0007	0.0009	0.0009	0.0008

482	481	480	479	478	477	476	475	474	473	472
1316	1319	1320	1322.5	1324	1326	1329	1331	1333	1335.5	1338
0.2750	0.2800	0.2950	0.2550	0.2250	0.2350	0.2250	0.2500	0.2400	0.2200	0.2400
1.7574	1.5681	1.4849	1.5316	1.5743	1.5657	1.4829	1.6750	1.7238	1.5004	1.5344
0.0414	0.0453	0.0447	0.0429	0.0402	0.0370	0.0353	0.0374	0.0480	0.0425	0.0280
0.1019	0.0855	0.0808	0.0700	0.0664	0.0519	0.0571	0.0533	0.0461	0.0460	0.0516
0.0363	0.0339	0.0348	0.0316	0.0327	0.0390	0.0337	0.0324	0.0384	0.0422	0.0395
0.2933	0.2912	0.2854	0.2890	0.2885	0.2884	0.2819	0.2791	0.2871	0.2897	0.2967
0.1414	0.1268	0.1166	0.1261	0.1342	0.1342	0.1384	0.1350	0.1247	0.1250	0.1341
0.0305	0.0337	0.0359	0.0334	0.0283	0.0356	0.0352	0.0246	0.0287	0.0332	0.0304
2.7708	2.9442	2.8199	2.5360	2.4170	2.6783	2.8463	2.6068	2.5528	2.5389	2.3873
0.0068	0.0068	0.0065	0.0063	0.0064	0.0067	0.0064	0.0064	0.0067	0.0067	0.0063
0.0000	0.0004	0.0006	0.0005	0.0004	0.0003	0.0004	0.0005	0.0006	0.0008	0.0008
0.0071	0.0065	0.0059	0.0056	0.0058	0.0062	0.0061	0.0061	0.0063	0.0063	0.0064
0.0039	0.0036	0.0033	0.0033	0.0034	0.0036	0.0035	0.0035	0.0035	0.0036	0.0036
0.0017	0.0016	0.0016	0.0017	0.0016	0.0015	0.0015	0.0016	0.0017	0.0016	0.0015
0.0058	0.0053	0.0049	0.0049	0.0051	0.0054	0.0056	0.0056	0.0055	0.0055	0.0057
0.0011	0.0011	0.0005	0.0003	0.0007	0.0009	0.0008	0.0008	0.0009	0.0009	0.0008
0.0010	0.0008	0.0007	0.0008	0.0008	0.0008	0.0009	0.0009	0.0009	0.0008	0.0007

493	492	491	490	489	488	487	486	485	484	483
1295	1296.5	1299	1301	1303	1305	1307	1309	1310	1312	1314
0.2605	0.2935	0.2335	0.2250	0.2200	0.2500	0.3000	0.3150	0.2800	0.2100	0.2350
1.4836	1.5527	1.4038	1.5186	1.6986	1.6101	1.6704	1.7278	1.4801	1.3919	1.6337
0.0333	0.0425	0.0428	0.0411	0.0418	0.0427	0.0403	0.0330	0.0342	0.0418	0.0435
0.0632	0.0611	0.0804	0.1056	0.1053	0.0829	0.0673	0.0787	0.0988	0.0974	0.1120
0.0354	0.0358	0.0383	0.0355	0.0334	0.0325	0.0324	0.0332	0.0351	0.0413	0.0405
0.3385	0.3129	0.2835	0.2836	0.2854	0.2851	0.2933	0.3001	0.2819	0.2692	0.2791
0.1224	0.1202	0.1086	0.1272	0.1387	0.1324	0.1365	0.1359	0.1160	0.1184	0.1377
0.0299	0.0290	0.0270	0.0285	0.0288	0.0278	0.0322	0.0351	0.0331	0.0287	0.0272
2.3889	2.5606	2.4816	2.7701	2.8960	2.6563	2.7086	2.7163	2.5978	2.5814	2.6379
0.0065	0.0067	0.0061	0.0063	0.0069	0.0065	0.0065	0.0069	0.0063	0.0063	0.0068
0.0007	0.0016	0.0021	0.0009	0.0005	0.0008	0.0005	0.0005	0.0008	0.0006	0.0000
0.0055	0.0056	0.0051	0.0064	0.0072	0.0065	0.0066	0.0067	0.0058	0.0059	0.0068
0.0032	0.0031	0.0030	0.0035	0.0038	0.0036	0.0036	0.0036	0.0034	0.0034	0.0038
0.0014	0.0015	0.0015	0.0016	0.0017	0.0016	0.0016	0.0016	0.0015	0.0015	0.0016
0.0053	0.0051	0.0047	0.0053	0.0054	0.0053	0.0054	0.0053	0.0049	0.0052	0.0057
0.0010	0.0009	0.0006	0.0008	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008
0.0007	0.0007	0.0007	0.0007	0.0008	0.0008	0.0008	0.0009	0.0008	0.0009	0.0010

504	503	502	501	500	499	498	497	496	495	494
1274	1276	1278	1280	1282	1284	1286	1287	1289	1291	1293
0.2650	0.3150	0.2650	0.2350	0.3050	0.2950	0.2350	0.2800	0.3600	0.3100	0.1955
1.5142	1.6472	1.6934	1.8042	2.1023	1.9152	1.5709	1.5850	1.6202	1.5249	1.4120
0.0508	0.0507	0.0394	0.0304	0.0336	0.0427	0.0439	0.0433	0.0450	0.0460	0.0425
0.1137	0.1468	0.1268	0.0759	0.0864	0.1189	0.1080	0.0620	0.0604	0.0564	0.0555
0.0355	0.0301	0.0325	0.0394	0.0347	0.0322	0.0356	0.0349	0.0329	0.0339	0.0354
0.2843	0.2779	0.2784	0.2825	0.2969	0.2934	0.2840	0.2949	0.3288	0.3393	0.3256
0.1261	0.1243	0.1204	0.1460	0.1705	0.1501	0.1199	0.1222	0.1322	0.1156	0.1050
0.0169	0.0164	0.0166	0.0168	0.0171	0.0204	0.0196	0.0171	0.0531	0.0600	0.0301
2.3824	2.4561	2.3366	2.2373	2.3595	2.4278	2.2935	2.2680	3.3127	3.2406	2.2218
0.0064	0.0061	0.0062	0.0069	0.0070	0.0065	0.0063	0.0067	0.0063	0.0055	0.0055
0.0006	0.0022	0.0025	0.0009	0.0006	0.0007	0.0010	0.0008	0.0005	0.0006	0.0007
0.0063	0.0061	0.0057	0.0061	0.0069	0.0066	0.0057	0.0059	0.0058	0.0047	0.0046
0.0035	0.0035	0.0034	0.0035	0.0039	0.0037	0.0032	0.0032	0.0034	0.0031	0.0030
0.0016	0.0014	0.0013	0.0016	0.0018	0.0016	0.0013	0.0014	0.0016	0.0017	0.0015
0.0054	0.0051	0.0047	0.0059	0.0069	0.0059	0.0046	0.0051	0.0064	0.0061	0.0050
0.0010	0.0005	0.0005	0.0010	0.0011	0.0009	0.0007	0.0008	0.0009	0.0010	0.0009
0.0009	0.0011	0.0009	0.0008	0.0010	0.0008	0.0007	0.0008	0.0009	0.0008	0.0007

515	514	513	512	511	510	509	508	507	506	505
1255.5	1257	1259	1260	1262	1264	1265	1267	1269	1271	1272
0.1887	0.2150	0.2650	0.2315	0.2074	0.2109	0.2200	0.2850	0.3150	0.2650	0.2050
1.1729	1.2866	1.2914	1.1292	1.1271	1.3549	1.6290	1.8789	2.0719	1.9383	1.6160
0.0378	0.0341	0.0349	0.0324	0.0307	0.0342	0.0343	0.0432	0.0461	0.0373	0.0442
0.0341	0.0242	0.0600	0.0702	0.0760	0.0702	0.0510	0.0328	0.0698	0.1268	0.1126
0.0438	0.0430	0.0415	0.0437	0.0423	0.0393	0.0439	0.0366	0.0273	0.0278	0.0321
0.2285	0.2410	0.2442	0.2236	0.2122	0.2330	0.2668	0.2753	0.2955	0.2989	0.2861
0.1083	0.1079	0.1116	0.1018	0.1043	0.1268	0.1560	0.1753	0.1813	0.1627	0.1337
0.0146	0.0147	0.0172	0.0181	0.0176	0.0177	0.0216	0.0275	0.0226	0.0145	0.0152
2.2126	2.1611	2.1292	2.2249	2.3781	2.4745	2.3516	2.7149	2.8388	2.4837	2.3972
0.0054	0.0054	0.0056	0.0054	0.0051	0.0056	0.0062	0.0076	0.0084	0.0072	0.0066
0.0005	0.0002	0.0002	0.0007	0.0009	0.0007	0.0006	0.0007	0.0006	0.0005	0.0007
0.0054	0.0055	0.0051	0.0050	0.0052	0.0056	0.0061	0.0067	0.0073	0.0073	0.0066
0.0030	0.0032	0.0032	0.0031	0.0030	0.0033	0.0036	0.0037	0.0041	0.0041	0.0036
0.0015	0.0015	0.0015	0.0015	0.0013	0.0015	0.0016	0.0016	0.0017	0.0016	0.0016
0.0056	0.0058	0.0052	0.0045	0.0043	0.0050	0.0060	0.0061	0.0066	0.0065	0.0056
0.0008	0.0010	0.0010	0.0009	0.0006	0.0009	0.0011	0.0011	0.0012	0.0010	0.0009
0.0008	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0011	0.0012	0.0009	0.0007

526	525	524	523	522	521	520	519	518	517	516
1235	1237	1239	1241	1243	1245	1247	1248	1250.5	1252	1254
0.2850	0.2750	0.2150	0.1928	0.2228	0.2450	0.2650	0.2700	0.2353	0.2153	0.2037
1.5258	1.5821	1.4376	1.3838	1.2582	1.2487	1.5874	1.5268	1.2752	1.2998	1.2268
0.0440	0.0517	0.0450	0.0455	0.0495	0.0344	0.0394	0.0510	0.0387	0.0293	0.0365
0.0745	0.0924	0.0748	0.0714	0.1015	0.1087	0.1009	0.0631	0.0329	0.0412	0.0494
0.0375	0.0353	0.0404	0.0404	0.0382	0.0367	0.0360	0.0412	0.0404	0.0329	0.0384
0.2712	0.2764	0.2624	0.2400	0.2246	0.2324	0.2603	0.2541	0.2389	0.2377	0.2331
0.1414	0.1347	0.1239	0.1219	0.1077	0.1154	0.1483	0.1386	0.1163	0.1200	0.1209
0.0299	0.0267	0.0213	0.0187	0.0207	0.0181	0.0175	0.0236	0.0222	0.0163	0.0160
2.8240	2.6324	2.6498	2.7763	2.7488	2.5051	2.5077	2.7329	2.6533	2.4817	2.2672
0.0071	0.0067	0.0062	0.0063	0.0056	0.0054	0.0065	0.0065	0.0057	0.0056	0.0055
0.0008	0.0008	0.0008	0.0008	0.0007	0.0007	0.0006	0.0005	0.0015	0.0014	0.0004
0.0067	0.0063	0.0061	0.0061	0.0056	0.0056	0.0063	0.0062	0.0056	0.0057	0.0056
0.0040	0.0038	0.0035	0.0033	0.0031	0.0032	0.0037	0.0036	0.0033	0.0034	0.0032
0.0016	0.0016	0.0015	0.0015	0.0013	0.0013	0.0016	0.0016	0.0015	0.0014	0.0014
0.0058	0.0056	0.0054	0.0053	0.0049	0.0048	0.0055	0.0056	0.0056	0.0057	0.0054
0.0010	0.0009	0.0011	0.0009	0.0007	0.0008	0.0010	0.0009	0.0009	0.0010	0.0008
0.0008	0.0009	0.0010	0.0009	0.0008	0.0008	0.0009	0.0009	0.0008	0.0009	0.0009

537	536	535	534	533	532	531	530	529	528	527
1093	1108	1123	1138	1152	1168	1183	1197	1212	1228	1232.5
0.2566	0.2800	0.2200	0.2300	0.3050	0.2700	0.2700	0.2802	0.2952	0.2600	0.2250
1.4787	1.3832	1.3358	1.4904	1.6154	1.4808	1.5115	1.6103	1.4272	1.4059	1.4352
0.0368	0.0352	0.0372	0.0431	0.0536	0.0526	0.0415	0.0400	0.0426	0.0419	0.0419
0.1316	0.1189	0.0994	0.1264	0.1109	0.0814	0.0860	0.1032	0.1088	0.0937	0.0842
0.0378	0.0376	0.0389	0.0357	0.0348	0.0432	0.0437	0.0361	0.0383	0.0395	0.0397
0.2815	0.2830	0.2879	0.2979	0.2909	0.2610	0.2607	0.2950	0.2982	0.2801	0.2719
0.1284	0.1294	0.1356	0.1333	0.1308	0.1297	0.1355	0.1429	0.1279	0.1237	0.1333
0.0372	0.0439	0.0428	0.0421	0.0422	0.0350	0.0349	0.0594	0.0729	0.0527	0.0361
3.1895	3.3433	3.2833	3.1952	3.1586	3.2184	3.3051	4.0853	4.7796	3.9295	3.0413
0.0066	0.0069	0.0066	0.0065	0.0068	0.0065	0.0061	0.0060	0.0060	0.0061	0.0066
0.0006	0.0006	0.0006	0.0005	0.0007	0.0004	0.0003	0.0005	0.0005	0.0006	0.0006
0.0064	0.0065	0.0064	0.0062	0.0062	0.0062	0.0061	0.0060	0.0057	0.0057	0.0063
0.0037	0.0036	0.0036	0.0037	0.0036	0.0035	0.0035	0.0034	0.0033	0.0033	0.0037
0.0016	0.0017	0.0018	0.0017	0.0017	0.0015	0.0017	0.0019	0.0018	0.0016	0.0015
0.0062	0.0060	0.0061	0.0063	0.0059	0.0056	0.0065	0.0067	0.0060	0.0058	0.0057
0.0009	0.0009	0.0012	0.0011	0.0007	0.0007	0.0009	0.0009	0.0008	0.0010	0.0011
0.0009	0.0010	0.0011	0.0010	0.0008	0.0010	0.0011	0.0010	0.0008	0.0007	0.0007

548	547	546	545	544	543	542	541	540	539	538
927	942	957	972	987	1002	1017	1033	1047	1062	1077
0.3300	0.3400	0.3100	0.3250	0.3400	0.3650	0.3400	0.3150	0.3450	0.2900	0.2366
2.1854	2.0068	1.9054	1.9796	1.8814	1.8940	1.8821	1.8062	1.7769	1.5988	1.4671
0.0428	0.0484	0.0507	0.0442	0.0403	0.0481	0.0554	0.0507	0.0453	0.0381	0.0380
0.0917	0.1385	0.1464	0.1522	0.1354	0.1038	0.1030	0.1013	0.1175	0.1260	0.1245
0.0374	0.0354	0.0362	0.0317	0.0306	0.0381	0.0401	0.0376	0.0380	0.0425	0.0418
0.2796	0.2816	0.2744	0.2829	0.2951	0.3159	0.3067	0.2779	0.2656	0.2651	0.2725
0.1858	0.1796	0.1798	0.1769	0.1638	0.1656	0.1677	0.1639	0.1599	0.1510	0.1353
0.0235	0.0283	0.0279	0.0315	0.0421	0.0497	0.0440	0.0285	0.0268	0.0326	0.0342
2.8135	2.9717	2.9493	3.1194	3.6456	3.7926	3.3635	2.9968	3.1128	3.1461	3.0883
0.0074	0.0075	0.0066	0.0065	0.0065	0.0066	0.0068	0.0070	0.0070	0.0069	0.0067
0.0007	0.0006	0.0006	0.0006	0.0008	0.0009	0.0007	0.0006	0.0007	0.0007	0.0006
0.0075	0.0077	0.0074	0.0071	0.0068	0.0066	0.0068	0.0070	0.0070	0.0067	0.0064
0.0045	0.0044	0.0042	0.0041	0.0041	0.0042	0.0042	0.0041	0.0040	0.0037	0.0036
0.0021	0.0021	0.0022	0.0020	0.0021	0.0022	0.0021	0.0019	0.0019	0.0019	0.0017
0.0086	0.0082	0.0079	0.0077	0.0079	0.0084	0.0082	0.0075	0.0069	0.0064	0.0062
0.0012	0.0013	0.0013	0.0013	0.0011	0.0009	0.0010	0.0012	0.0012	0.0011	0.0010
0.0009	0.0011	0.0011	0.0009	0.0006	0.0006	0.0010	0.0011	0.0009	0.0008	0.0008

559	558	557	556	555	554	553	552	551	550	549
762	777	792	807	822	837	852	867	882	897	912
0.3400	0.4150	0.3800	0.3200	0.3300	0.3650	0.3500	0.2950	0.3200	0.3650	0.3300
2.1102	1.9697	1.9991	2.0741	2.1460	2.1480	2.1570	2.1420	2.0277	2.0639	2.1241
0.0460	0.0441	0.0528	0.0404	0.0401	0.0435	0.0428	0.0394	0.0434	0.0447	0.0447
0.0965	0.1312	0.1130	0.0955	0.1024	0.0937	0.0691	0.0769	0.0820	0.0929	0.0989
0.0251	0.0235	0.0309	0.0309	0.0342	0.0314	0.0349	0.0368	0.0421	0.0454	0.0381
0.4258	0.4146	0.4546	0.4891	0.4658	0.3811	0.3256	0.2912	0.2609	0.2607	0.2627
0.1988	0.2025	0.1925	0.1834	0.1867	0.1912	0.1942	0.1885	0.1797	0.1867	0.1877
0.0373	0.0434	0.0680	0.0761	0.0610	0.0412	0.0314	0.0251	0.0228	0.0228	0.0224
3.1880	3.4404	4.0089	4.1369	3.8297	3.1941	2.7013	2.6832	2.8010	2.8771	2.8730
0.0077	0.0081	0.0077	0.0073	0.0076	0.0075	0.0075	0.0074	0.0066	0.0067	0.0069
0.0008	0.0006	0.0005	0.0005	0.0007	0.0006	0.0005	0.0005	0.0005	0.0005	0.0007
0.0079	0.0078	0.0074	0.0073	0.0073	0.0076	0.0075	0.0075	0.0073	0.0074	0.0074
0.0047	0.0046	0.0045	0.0046	0.0046	0.0046	0.0045	0.0044	0.0043	0.0044	0.0044
0.0023	0.0023	0.0023	0.0022	0.0023	0.0023	0.0022	0.0020	0.0020	0.0022	0.0022
0.0106	0.0105	0.0098	0.0101	0.0103	0.0093	0.0090	0.0091	0.0090	0.0091	0.0089
0.0016	0.0017	0.0016	0.0018	0.0017	0.0015	0.0016	0.0015	0.0012	0.0011	0.0013
0.0010	0.0012	0.0012	0.0012	0.0012	0.0012	0.0011	0.0010	0.0011	0.0011	0.0009

570	569	568	567	566	565	564	563	562	561	560
622	624	628	643	657	672	687	702	717	732	747
0.2700	0.2200	0.2600	0.3150	0.3200	0.3000	0.3300	0.3900	0.3550	0.3050	0.3000
2.0244	1.8567	1.8001	2.0099	2.1780	2.0862	1.9658	2.0735	2.1216	2.1919	2.2147
0.0341	0.0312	0.0284	0.0279	0.0332	0.0361	0.0337	0.0333	0.0372	0.0372	0.0528
0.1048	0.1047	0.0633	0.0740	0.0772	0.1065	0.0923	0.0585	0.0635	0.0803	0.0935
0.0324	0.0333	0.0342	0.0324	0.0330	0.0325	0.0338	0.0322	0.0290	0.0296	0.0340
0.4902	0.4679	0.4987	0.5105	0.4813	0.4566	0.4631	0.5101	0.5847	0.5447	0.4621
0.1908	0.1936	0.1981	0.2022	0.1977	0.1953	0.1966	0.1925	0.1788	0.1730	0.1864
0.0343	0.0370	0.0457	0.0450	0.0442	0.0405	0.0408	0.0611	0.0839	0.0781	0.0563
2.6138	2.5626	2.4233	2.4384	2.6857	2.8462	2.8812	2.9442	3.4485	3.7414	3.4258
0.0071	0.0070	0.0071	0.0072	0.0071	0.0070	0.0071	0.0071	0.0072	0.0073	0.0073
0.0007	0.0007	0.0007	0.0006	0.0006	0.0005	0.0006	0.0006	0.0005	0.0006	0.0007
0.0067	0.0068	0.0069	0.0070	0.0070	0.0070	0.0070	0.0071	0.0071	0.0072	0.0075
0.0045	0.0045	0.0045	0.0047	0.0048	0.0046	0.0045	0.0046	0.0045	0.0044	0.0045
0.0022	0.0022	0.0023	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0023
0.0107	0.0108	0.0104	0.0106	0.0107	0.0109	0.0104	0.0094	0.0096	0.0097	0.0101
0.0014	0.0014	0.0013	0.0012	0.0013	0.0014	0.0014	0.0014	0.0013	0.0013	0.0013
0.0011	0.0011	0.0010	0.0010	0.0010	0.0011	0.0010	0.0010	0.0011	0.0010	0.0010

581	580	579	578	577	576	575	574	573	572	571
604	606	607	609	610	612	614	615	617	619	621
0.2550	0.3500	0.3850	0.3100	0.2700	0.3150	0.3650	0.3600	0.3600	0.3500	0.3200
2.1063	2.1999	2.1840	2.0383	2.0307	2.1042	2.1454	2.2447	2.3078	2.2321	2.0593
0.0351	0.0324	0.0297	0.0356	0.0407	0.0439	0.0525	0.0439	0.0317	0.0358	0.0381
0.0547	0.0872	0.0893	0.0754	0.0707	0.0806	0.0958	0.1117	0.1296	0.0946	0.0716
0.0401	0.0308	0.0316	0.0342	0.0325	0.0329	0.0326	0.0332	0.0354	0.0346	0.0349
0.5633	0.6207	0.6400	0.6253	0.6054	0.5613	0.5808	0.5666	0.5116	0.5850	0.5960
0.1738	0.1792	0.1881	0.1877	0.1711	0.1752	0.1895	0.1896	0.1966	0.1995	0.1929
0.0797	0.0901	0.0977	0.1005	0.0914	0.0791	0.0919	0.0776	0.0411	0.0400	0.0447
2.7511	2.9004	3.0496	3.1936	3.1478	3.0996	3.1189	2.9274	2.6419	2.4815	2.4754
0.0064	0.0068	0.0071	0.0068	0.0072	0.0069	0.0069	0.0074	0.0075	0.0075	0.0072
0.0009	0.0008	0.0006	0.0005	0.0007	0.0008	0.0006	0.0006	0.0007	0.0007	0.0007
0.0066	0.0065	0.0066	0.0066	0.0068	0.0069	0.0066	0.0067	0.0072	0.0074	0.0071
0.0046	0.0048	0.0050	0.0051	0.0049	0.0047	0.0047	0.0048	0.0049	0.0048	0.0047
0.0020	0.0021	0.0023	0.0022	0.0022	0.0023	0.0024	0.0022	0.0022	0.0021	0.0022
0.0104	0.0106	0.0110	0.0107	0.0104	0.0106	0.0104	0.0105	0.0106	0.0097	0.0097
0.0013	0.0014	0.0014	0.0014	0.0014	0.0012	0.0013	0.0016	0.0017	0.0015	0.0014
0.0009	0.0010	0.0010	0.0012	0.0011	0.0010	0.0011	0.0012	0.0011	0.0011	0.0011

592	591	590	589	588	587	586	585	584	583	582
587	589	590	592	594	595	597	598	600	601	603
0.3000	0.3500	0.3850	0.3800	0.3200	0.2550	0.2900	0.3550	0.1800	0.2200	0.3250
2.0657	2.2082	2.4091	2.3791	2.1902	2.2084	2.2278	2.1831	1.9958	2.0168	2.1057
0.0318	0.0344	0.0357	0.0362	0.0605	0.0612	0.0327	0.0341	0.0389	0.0384	0.0356
0.0447	0.0695	0.0633	0.0594	0.0517	0.0452	0.1368	0.1547	0.1191	0.1472	0.1041
0.0352	0.0328	0.0314	0.0336	0.0332	0.0333	0.0294	0.0292	0.0362	0.0378	0.0418
0.6111	0.6867	0.8390	0.7025	0.5375	0.5516	0.5592	0.5539	0.5341	0.5292	0.5480
0.1936	0.2023	0.1857	0.1901	0.2077	0.2246	0.2202	0.1971	0.1804	0.1864	0.1887
0.0834	0.0985	0.1252	0.0987	0.0765	0.0787	0.0869	0.0920	0.0635	0.0535	0.0662
2.7211	2.9525	3.5137	3.2482	2.9803	2.9631	3.0198	3.1250	2.6028	2.4570	2.5744
0.0068	0.0074	0.0079	0.0078	0.0073	0.0072	0.0070	0.0069	0.0073	0.0072	0.0070
0.0010	0.0009	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008	0.0009
0.0068	0.0069	0.0069	0.0070	0.0069	0.0071	0.0071	0.0069	0.0066	0.0064	0.0067
0.0048	0.0048	0.0051	0.0050	0.0047	0.0050	0.0049	0.0048	0.0047	0.0046	0.0047
0.0023	0.0024	0.0024	0.0022	0.0024	0.0025	0.0023	0.0023	0.0022	0.0021	0.0022
0.0112	0.0116	0.0112	0.0119	0.0136	0.0153	0.0139	0.0111	0.0105	0.0101	0.0102
0.0015	0.0015	0.0016	0.0015	0.0017	0.0019	0.0017	0.0015	0.0015	0.0013	0.0011
0.0008	0.0009	0.0011	0.0010	0.0011	0.0012	0.0012	0.0013	0.0011	0.0009	0.0008

603	602	601	600	599	598	597	596	595	594	593
576	576	577	578	578	579	580	581	582	583	585
0.3900	0.3400	0.3050	0.3050	0.3200	0.3200	0.2950	0.2850	0.3300	0.3800	0.3150
1.9840	2.0458	2.0028	1.9951	1.9937	1.9471	2.0178	2.1134	2.2838	2.1483	1.9194
0.0323	0.0355	0.0397	0.0451	0.0371	0.0304	0.0349	0.0360	0.0346	0.0377	0.0338
0.0461	0.1038	0.1028	0.0441	0.0432	0.0383	0.0463	0.1070	0.1343	0.0650	0.0205
0.0336	0.0311	0.0294	0.0316	0.0358	0.0396	0.0366	0.0337	0.0335	0.0317	0.0331
0.6642	0.6948	0.7773	0.8402	0.7613	0.7938	0.8024	0.7613	0.6892	0.9162	0.9499
0.1980	0.1999	0.1946	0.1845	0.1987	0.2063	0.1960	0.2042	0.2313	0.2151	0.1806
0.0772	0.0891	0.1165	0.1227	0.0988	0.0872	0.0889	0.0850	0.0641	0.1170	0.1331
3.0472	3.2640	3.8295	3.9738	3.4949	3.1400	3.0389	3.0066	2.7520	3.8485	3.9112
0.0067	0.0064	0.0065	0.0066	0.0070	0.0071	0.0066	0.0068	0.0073	0.0066	0.0064
0.0009	0.0007	0.0006	0.0006	0.0007	0.0008	0.0006	0.0007	0.0007	0.0006	0.0008
0.0067	0.0065	0.0060	0.0061	0.0065	0.0064	0.0063	0.0065	0.0068	0.0064	0.0062
0.0050	0.0050	0.0048	0.0047	0.0048	0.0049	0.0049	0.0050	0.0050	0.0051	0.0050
0.0023	0.0022	0.0022	0.0023	0.0023	0.0021	0.0021	0.0024	0.0026	0.0027	0.0025
0.0114	0.0112	0.0106	0.0104	0.0112	0.0111	0.0108	0.0109	0.0135	0.0132	0.0104
0.0015	0.0012	0.0011	0.0011	0.0012	0.0013	0.0013	0.0013	0.0014	0.0013	0.0015
0.0009	0.0011	0.0011	0.0010	0.0011	0.0010	0.0010	0.0011	0.0011	0.0012	0.0010

614	613	612	611	610	609	608	607	606	605	604
567	568	569	569	570	571	572	573	573	574	575
0.3550	0.3350	0.3550	0.4100	0.3300	0.2619	0.3319	0.3900	0.3700	0.3250	0.3250
2.0791	2.0988	2.2980	2.2895	2.3077	2.0905	2.1459	2.5789	2.4223	2.3382	2.1095
0.0356	0.0386	0.0363	0.0339	0.0403	0.0423	0.0396	0.0402	0.0384	0.0387	0.0353
0.0439	0.0411	0.0496	0.0414	0.0338	0.0165	0.0109	0.0593	0.0765	0.0481	0.0462
0.0398	0.0393	0.0310	0.0289	0.0370	0.0187	0.0204	0.0348	0.0310	0.0329	0.0334
0.5453	0.5672	0.5609	0.5335	0.5481	0.5159	0.5144	0.5790	0.6027	0.7226	0.7149
0.1954	0.1976	0.2164	0.2362	0.2266	0.2079	0.2253	0.2430	0.2381	0.2275	0.2023
0.1402	0.1238	0.0840	0.0623	0.0685	0.0773	0.0678	0.0544	0.0552	0.0680	0.0793
2.9786	2.8460	2.6994	2.7294	2.7722	3.1221	3.1234	2.9382	2.8406	2.7686	2.9789
0.0063	0.0064	0.0067	0.0077	0.0084	0.0081	0.0078	0.0076	0.0069	0.0065	0.0068
0.0008	0.0008	0.0008	0.0008	0.0007	0.0008	0.0008	0.0008	0.0007	0.0007	0.0009
0.0061	0.0064	0.0071	0.0075	0.0074	0.0070	0.0069	0.0071	0.0071	0.0069	0.0067
0.0045	0.0046	0.0048	0.0051	0.0052	0.0049	0.0049	0.0052	0.0051	0.0050	0.0049
0.0025	0.0024	0.0025	0.0026	0.0026	0.0026	0.0026	0.0026	0.0025	0.0025	0.0024
0.0130	0.0130	0.0134	0.0141	0.0145	0.0141	0.0156	0.0157	0.0147	0.0139	0.0120
0.0015	0.0015	0.0016	0.0017	0.0016	0.0016	0.0016	0.0016	0.0016	0.0015	0.0014
0.0010	0.0009	0.0011	0.0013	0.0011	0.0011	0.0012	0.0012	0.0012	0.0012	0.0010

625	624	623	622	621	620	619	618	617	616	615
557	558	559	559	560	562	563	564	564.5	565	566
0.2950	0.4000	0.3750	0.3450	0.3350	0.3050	0.3250	0.2950	0.2950	0.3100	0.3050
2.2725	2.2886	2.3676	2.4701	2.3236	2.1584	2.3287	2.3861	2.2891	2.1707	2.0427
0.0364	0.0324	0.0401	0.0399	0.0411	0.0413	0.0345	0.0338	0.0342	0.0354	0.0361
0.0619	0.0602	0.0628	0.0399	0.0673	0.0984	0.0792	0.0727	0.0788	0.0751	0.0671
0.0340	0.0280	0.0299	0.0359	0.0356	0.0334	0.0353	0.0352	0.0330	0.0326	0.0376
0.4821	0.4987	0.4821	0.4682	0.5464	0.5651	0.5351	0.5103	0.5088	0.5302	0.5235
0.2363	0.2391	0.2225	0.2300	0.2159	0.1822	0.1917	0.2066	0.2090	0.2064	0.1968
0.0316	0.0521	0.0507	0.0299	0.0568	0.0782	0.0682	0.0509	0.0554	0.1176	0.1543
2.5307	2.8487	2.9257	2.5627	2.7964	3.1295	3.0153	2.8006	2.7225	2.9552	3.0581
0.0079	0.0079	0.0076	0.0074	0.0073	0.0072	0.0072	0.0074	0.0076	0.0070	0.0062
0.0007	0.0007	0.0008	0.0007	0.0007	0.0008	0.0008	0.0008	0.0007	0.0007	0.0009
0.0078	0.0074	0.0074	0.0076	0.0072	0.0067	0.0068	0.0072	0.0071	0.0066	0.0061
0.0049	0.0049	0.0050	0.0050	0.0049	0.0048	0.0049	0.0049	0.0047	0.0047	0.0046
0.0025	0.0027	0.0026	0.0026	0.0028	0.0025	0.0024	0.0025	0.0024	0.0024	0.0026
0.0143	0.0150	0.0128	0.0135	0.0141	0.0116	0.0121	0.0133	0.0125	0.0125	0.0133
0.0019	0.0017	0.0016	0.0017	0.0014	0.0014	0.0014	0.0014	0.0015	0.0013	0.0015
0.0012	0.0011	0.0011	0.0012	0.0011	0.0011	0.0011	0.0012	0.0014	0.0013	0.0011

636	635	634	633	632	631	630	629	628	627	626
551	551	552	552	553	554	554	555	555	556	557
0.3700	0.3750	0.3150	0.3050	0.3350	0.2600	0.2400	0.3350	0.3300	0.2800	0.2650
2.6126	2.5216	2.4488	2.5454	2.5941	2.5468	2.5181	2.4225	2.2859	2.3205	2.3511
0.0421	0.0354	0.0405	0.0380	0.0405	0.0382	0.0336	0.0385	0.0400	0.0338	0.0379
0.0349	0.0429	0.0488	0.0616	0.0599	0.0704	0.0940	0.0913	0.0925	0.1021	0.0916
0.0400	0.0416	0.0382	0.0341	0.0314	0.0330	0.0319	0.0289	0.0266	0.0277	0.0349
0.5542	0.4867	0.5082	0.5575	0.6449	0.6931	0.6087	0.5712	0.5376	0.5141	0.5061
0.2426	0.2326	0.2304	0.2350	0.2396	0.2466	0.2399	0.2153	0.2001	0.2042	0.2201
0.0462	0.0360	0.0437	0.0428	0.0417	0.0475	0.0461	0.0517	0.0558	0.0554	0.0423
2.9943	2.7132	2.7041	2.6091	2.6896	2.8372	2.8282	2.8170	2.9165	3.0261	2.7470
0.0078	0.0077	0.0071	0.0074	0.0079	0.0077	0.0077	0.0078	0.0077	0.0078	0.0079
0.0006	0.0005	0.0005	0.0005	0.0006	0.0006	0.0005	0.0005	0.0006	0.0007	0.0006
0.0076	0.0072	0.0071	0.0072	0.0070	0.0069	0.0070	0.0070	0.0071	0.0073	0.0076
0.0053	0.0052	0.0052	0.0051	0.0050	0.0051	0.0051	0.0049	0.0048	0.0049	0.0050
0.0027	0.0028	0.0028	0.0027	0.0028	0.0029	0.0026	0.0025	0.0024	0.0025	0.0025
0.0157	0.0151	0.0147	0.0153	0.0164	0.0164	0.0161	0.0151	0.0137	0.0122	0.0126
0.0018	0.0017	0.0017	0.0018	0.0016	0.0016	0.0018	0.0018	0.0016	0.0014	0.0017
0.0013	0.0014	0.0013	0.0013	0.0014	0.0014	0.0014	0.0013	0.0012	0.0013	0.0014

647	646	645	644	643	642	641	640	639	638	637
545	545	546	546	547	547	548	548	549	550	550
0.3400	0.3500	0.3700	0.3900	0.4500	0.3900	0.2700	0.3550	0.3500	0.3250	0.3600
2.6953	2.5395	2.6280	2.6403	2.5374	2.4863	2.3871	2.2023	2.0815	1.9720	2.1954
0.0379	0.0382	0.0337	0.0288	0.0281	0.0296	0.0302	0.0313	0.0328	0.0372	0.0494
0.0282	0.0185	0.0234	0.0392	0.0393	0.0149	0.0196	0.0313	0.0284	0.0220	0.0245
0.0410	0.0379	0.0385	0.0420	0.0396	0.0337	0.0381	0.0409	0.0391	0.0397	0.0398
0.4982	0.5163	0.4512	0.3810	0.5344	0.6911	0.5545	0.6054	0.7201	0.8572	0.8201
0.2524	0.2288	0.2393	0.2652	0.2518	0.2509	0.2808	0.2597	0.2325	0.2117	0.2191
0.0285	0.0426	0.0375	0.0197	0.0298	0.0386	0.0303	0.0649	0.0821	0.1149	0.1127
2.4826	2.7539	2.7967	2.4991	2.5579	2.5941	2.4447	3.3412	3.7341	5.2364	5.2889
0.0074	0.0078	0.0078	0.0076	0.0077	0.0073	0.0073	0.0076	0.0072	0.0070	0.0074
0.0006	0.0005	0.0005	0.0007	0.0006	0.0006	0.0007	0.0006	0.0006	0.0003	0.0004
0.0072	0.0075	0.0079	0.0079	0.0074	0.0069	0.0072	0.0070	0.0070	0.0069	0.0069
0.0054	0.0050	0.0050	0.0051	0.0049	0.0050	0.0053	0.0052	0.0051	0.0051	0.0053
0.0027	0.0026	0.0025	0.0026	0.0028	0.0030	0.0029	0.0030	0.0027	0.0026	0.0027
0.0168	0.0129	0.0120	0.0153	0.0164	0.0171	0.0186	0.0164	0.0142	0.0146	0.0154
0.0018	0.0016	0.0016	0.0018	0.0017	0.0018	0.0022	0.0019	0.0016	0.0017	0.0019
0.0015	0.0015	0.0013	0.0012	0.0012	0.0012	0.0012	0.0011	0.0010	0.0009	0.0010

658	657	656	655	654	653	652	651	650	649	648
538	539	539	540	541	541	542	542	543	543.5	544
0.2900	0.3200	0.3500	0.3750	0.3700	0.4300	0.3550	0.3500	0.4050	0.3250	0.3000
2.0182	2.1818	2.3543	2.6048	2.5338	2.3563	2.4465	2.5377	2.4262	2.4300	2.6205
0.0317	0.0334	0.0322	0.0344	0.0392	0.0712	0.0685	0.0383	0.0379	0.0386	0.0389
0.0699	0.0671	0.0525	0.0474	0.0846	0.0816	0.0401	0.0211	0.0222	0.0331	0.0427
0.0326	0.0332	0.0315	0.0351	0.0343	0.0300	0.0332	0.0357	0.0366	0.0389	0.0436
0.5337	0.5702	0.5432	0.4743	0.4804	0.4693	0.4831	0.4871	0.5342	0.5921	0.5286
0.2098	0.2127	0.2279	0.2481	0.2489	0.2367	0.2421	0.2471	0.2355	0.2313	0.2515
0.0653	0.0699	0.0688	0.0596	0.0639	0.0649	0.0426	0.0267	0.0493	0.0480	0.0270
3.2094	3.1851	3.0573	2.8225	2.8938	3.0313	2.7107	2.4897	2.7701	2.7298	2.5070
0.0071	0.0074	0.0072	0.0073	0.0076	0.0071	0.0069	0.0075	0.0075	0.0071	0.0069
0.0008	0.0008	0.0006	0.0005	0.0006	0.0007	0.0006	0.0007	0.0008	0.0006	0.0006
0.0068	0.0070	0.0067	0.0069	0.0071	0.0067	0.0068	0.0075	0.0076	0.0073	0.0072
0.0046	0.0047	0.0047	0.0048	0.0050	0.0049	0.0049	0.0050	0.0049	0.0048	0.0053
0.0024	0.0023	0.0024	0.0026	0.0027	0.0026	0.0025	0.0027	0.0026	0.0024	0.0025
0.0107	0.0118	0.0131	0.0144	0.0150	0.0150	0.0161	0.0153	0.0131	0.0135	0.0163
0.0014	0.0015	0.0015	0.0015	0.0015	0.0015	0.0016	0.0018	0.0018	0.0016	0.0017
0.0011	0.0010	0.0011	0.0014	0.0015	0.0012	0.0010	0.0011	0.0012	0.0012	0.0014

669	668	667	666	665	664	663	662	661	660	659
528	529	530	531	532	532	533	534	536	536	537
0.3100	0.2450	0.2100	0.2200	0.2350	0.2350	0.3000	0.3100	0.2400	0.2850	0.2750
2.5026	2.1463	1.7794	1.7873	1.9781	1.7636	1.8613	2.2196	2.0333	1.9125	1.8609
0.0298	0.0360	0.0408	0.0396	0.0382	0.0346	0.0317	0.0344	0.0333	0.0318	0.0323
0.0309	0.0436	0.0782	0.0899	0.0883	0.0936	0.0929	0.1000	0.0894	0.0657	0.0638
0.0351	0.0357	0.0367	0.0385	0.0340	0.0377	0.0385	0.0336	0.0387	0.0393	0.0351
0.6441	0.8489	0.8799	0.7532	0.6672	0.5653	0.5109	0.5196	0.5435	0.5334	0.5270
0.2280	0.2090	0.1860	0.1755	0.1847	0.1866	0.2031	0.2299	0.2241	0.2133	0.2089
0.0347	0.0674	0.1130	0.1195	0.0937	0.0602	0.0445	0.0446	0.0471	0.0499	0.0596
2.3596	2.6889	2.9777	2.9006	2.8225	2.6371	2.5405	2.7145	2.6442	2.7170	3.0976
0.0074	0.0068	0.0069	0.0075	0.0072	0.0065	0.0069	0.0074	0.0072	0.0072	0.0071
0.0006	0.0006	0.0008	0.0011	0.0010	0.0008	0.0010	0.0011	0.0009	0.0008	0.0007
0.0073	0.0068	0.0065	0.0067	0.0068	0.0066	0.0067	0.0070	0.0069	0.0068	0.0067
0.0050	0.0051	0.0050	0.0047	0.0048	0.0046	0.0045	0.0047	0.0046	0.0046	0.0047
0.0025	0.0023	0.0021	0.0020	0.0021	0.0022	0.0024	0.0025	0.0025	0.0024	0.0024
0.0142	0.0129	0.0104	0.0091	0.0105	0.0125	0.0132	0.0131	0.0129	0.0121	0.0112
0.0017	0.0015	0.0013	0.0012	0.0014	0.0015	0.0017	0.0016	0.0015	0.0016	0.0015
0.0013	0.0013	0.0014	0.0014	0.0013	0.0011	0.0011	0.0012	0.0012	0.0011	0.0011

680	679	678	677	676	675	674	673	672	671	670
519	520	521	521	522	523	524	525	526	526	527
0.3050	0.3900	0.3450	0.3250	0.2800	0.2750	0.2950	0.3100	0.3050	0.2250	0.2500
2.0520	2.1987	2.3748	2.3496	2.1395	2.2133	2.3907	2.4501	2.4449	2.4232	2.5287
0.0524	0.0334	0.0312	0.0312	0.0275	0.0282	0.0302	0.0296	0.0296	0.0335	0.0332
0.1058	0.0941	0.0932	0.0892	0.1133	0.0956	0.0609	0.0775	0.0983	0.1334	0.0911
0.0350	0.0381	0.0388	0.0369	0.0369	0.0376	0.0322	0.0362	0.0445	0.0386	0.0338
0.6550	0.6356	0.6294	0.5998	0.5486	0.5138	0.5320	0.5350	0.5400	0.5233	0.5303
0.2016	0.2119	0.2250	0.2382	0.2233	0.2147	0.2309	0.2355	0.2392	0.2429	0.2340
0.0960	0.0754	0.0605	0.0347	0.0319	0.0290	0.0328	0.0312	0.0328	0.0373	0.0347
3.4736	3.0209	2.8066	2.3152	2.2126	2.2577	2.3853	2.3767	2.2871	2.3370	2.3433
0.0069	0.0074	0.0072	0.0070	0.0067	0.0071	0.0077	0.0077	0.0078	0.0076	0.0075
0.0006	0.0008	0.0009	0.0007	0.0007	0.0007	0.0008	0.0007	0.0006	0.0007	0.0007
0.0069	0.0073	0.0072	0.0072	0.0069	0.0071	0.0075	0.0074	0.0073	0.0073	0.0074
0.0047	0.0049	0.0052	0.0051	0.0049	0.0049	0.0050	0.0050	0.0049	0.0050	0.0051
0.0023	0.0023	0.0024	0.0023	0.0023	0.0022	0.0022	0.0023	0.0025	0.0027	0.0026
0.0116	0.0121	0.0131	0.0138	0.0134	0.0130	0.0136	0.0146	0.0145	0.0144	0.0145
0.0014	0.0014	0.0015	0.0016	0.0015	0.0015	0.0017	0.0017	0.0016	0.0016	0.0017
0.0012	0.0012	0.0013	0.0013	0.0013	0.0012	0.0013	0.0014	0.0014	0.0013	0.0012

691	690	689	688	687	686	685	684	683	682	681
510	511	512	513	513	514	515	516	516	517	518
0.3700	0.3600	0.3350	0.2850	0.2700	0.2700	0.3350	0.3950	0.3700	0.2850	0.2250
2.0590	2.3405	2.3008	2.2043	2.0688	2.0000	2.2519	2.3975	2.3024	2.2270	2.1189
0.0347	0.0365	0.0374	0.0355	0.0341	0.0352	0.0354	0.0377	0.0379	0.0362	0.0524
0.0982	0.1051	0.0767	0.1137	0.1464	0.1209	0.1025	0.0859	0.1023	0.1117	0.1149
0.0322	0.0322	0.0389	0.0379	0.0362	0.0463	0.0412	0.0315	0.0330	0.0386	0.0363
0.7417	0.6607	0.7593	0.8449	0.6609	0.4988	0.5887	0.6599	0.6517	0.7067	0.7151
0.2036	0.2294	0.2283	0.2161	0.2019	0.2071	0.2180	0.2156	0.2174	0.2118	0.1967
0.1196	0.0731	0.0735	0.0809	0.0710	0.0481	0.0624	0.0774	0.0760	0.0947	0.1178
4.0731	3.0703	3.0326	3.0713	2.8479	2.5231	2.8385	3.0851	2.9461	3.2057	3.8112
0.0076	0.0078	0.0071	0.0069	0.0070	0.0070	0.0070	0.0072	0.0074	0.0072	0.0067
0.0009	0.0009	0.0009	0.0010	0.0009	0.0008	0.0009	0.0010	0.0009	0.0007	0.0006
0.0068	0.0072	0.0069	0.0068	0.0067	0.0070	0.0073	0.0074	0.0073	0.0069	0.0065
0.0051	0.0050	0.0049	0.0050	0.0049	0.0049	0.0051	0.0050	0.0049	0.0050	0.0049
0.0026	0.0026	0.0024	0.0023	0.0022	0.0022	0.0024	0.0025	0.0023	0.0023	0.0024
0.0122	0.0129	0.0126	0.0124	0.0122	0.0123	0.0126	0.0129	0.0127	0.0124	0.0120
0.0016	0.0015	0.0014	0.0017	0.0016	0.0016	0.0017	0.0016	0.0016	0.0016	0.0015
0.0012	0.0011	0.0011	0.0010	0.0012	0.0013	0.0012	0.0011	0.0013	0.0013	0.0012

702	701	700	699	698	697	696	695	694	693	692
497	498	500	501	503	505	505.5	506.5	507	508	509
0.3450	0.3350	0.3600	0.3450	0.3450	0.3250	0.2950	0.2800	0.3300	0.3600	0.3600
2.0864	2.3105	2.4515	2.3059	2.4004	2.3783	2.2035	2.3703	2.4641	2.2693	1.9745
0.0361	0.0398	0.0429	0.0419	0.0397	0.0418	0.0448	0.0374	0.0312	0.0365	0.0383
0.0720	0.0710	0.0792	0.0640	0.0522	0.0724	0.0529	0.0755	0.0986	0.0762	0.0843
0.0378	0.0411	0.0388	0.0395	0.0396	0.0381	0.0401	0.0401	0.0370	0.0400	0.0399
0.6250	0.6556	0.6742	0.6619	0.6919	0.6528	0.6757	0.6662	0.6029	0.6440	0.7303
0.2224	0.2174	0.2334	0.2360	0.2240	0.2061	0.2144	0.2421	0.2365	0.2147	0.1915
0.0761	0.0789	0.0756	0.0798	0.0649	0.0502	0.0583	0.0507	0.0448	0.0604	0.1203
3.0258	3.0086	2.9359	2.9114	2.6737	2.6804	2.7519	2.6281	2.6617	2.8425	4.0602
0.0072	0.0080	0.0080	0.0075	0.0074	0.0074	0.0074	0.0077	0.0077	0.0071	0.0069
0.0009	0.0010	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
0.0071	0.0075	0.0074	0.0072	0.0073	0.0073	0.0072	0.0073	0.0074	0.0071	0.0066
0.0050	0.0052	0.0052	0.0051	0.0053	0.0053	0.0052	0.0053	0.0053	0.0052	0.0050
0.0023	0.0023	0.0026	0.0026	0.0024	0.0023	0.0025	0.0026	0.0025	0.0024	0.0024
0.0127	0.0132	0.0141	0.0138	0.0134	0.0130	0.0132	0.0143	0.0141	0.0130	0.0118
0.0014	0.0016	0.0017	0.0015	0.0014	0.0016	0.0016	0.0017	0.0017	0.0015	0.0014
0.0012	0.0012	0.0011	0.0011	0.0013	0.0013	0.0013	0.0013	0.0013	0.0011	0.0012

713	712	711	710	709	708	707	706	705	704	703
482	483	484	485.5	487	488	490	491	492.5	494	495
0.3550	0.2900	0.3700	0.3550	0.2550	0.3350	0.3300	0.3250	0.3450	0.3100	0.3250
2.3454	2.2817	2.4903	2.2880	1.9159	2.0973	2.3082	2.3974	2.4465	2.3523	2.1831
0.0329	0.0360	0.0393	0.0444	0.0456	0.0380	0.0324	0.0365	0.0363	0.0388	0.0410
0.0802	0.1065	0.1001	0.0974	0.0731	0.0083	0.0166	0.0515	0.0810	0.1228	0.1145
0.0308	0.0334	0.0334	0.0344	0.0438	0.0455	0.0375	0.0365	0.0410	0.0424	0.0393
0.7148	0.7519	0.7343	0.7091	0.6834	0.5238	0.5838	0.7709	0.7089	0.6654	0.6599
0.2496	0.2393	0.2293	0.2193	0.2198	0.2234	0.2215	0.2277	0.2227	0.2177	0.2226
0.0576	0.0733	0.0863	0.0897	0.0842	0.0588	0.0591	0.0738	0.0659	0.0684	0.0760
2.6565	2.8527	3.1434	3.2910	3.2509	3.3174	3.1632	2.8235	2.7853	2.8528	2.9738
0.0077	0.0077	0.0079	0.0073	0.0077	0.0100	0.0095	0.0073	0.0074	0.0075	0.0071
0.0009	0.0007	0.0008	0.0008	0.0008	0.0010	0.0009	0.0009	0.0010	0.0008	0.0006
0.0074	0.0074	0.0076	0.0076	0.0074	0.0079	0.0078	0.0072	0.0072	0.0072	0.0070
0.0054	0.0054	0.0054	0.0052	0.0052	0.0050	0.0050	0.0053	0.0053	0.0052	0.0050
0.0025	0.0026	0.0026	0.0027	0.0027	0.0025	0.0025	0.0026	0.0025	0.0025	0.0024
0.0138	0.0131	0.0132	0.0125	0.0124	0.0114	0.0117	0.0137	0.0135	0.0133	0.0130
0.0016	0.0016	0.0017	0.0016	0.0017	0.0018	0.0016	0.0015	0.0016	0.0015	0.0014
0.0012	0.0014	0.0014	0.0013	0.0013	0.0018	0.0016	0.0011	0.0012	0.0015	0.0015

724	723	722	721	720	719	718	717	716	715	714
466	467.5	469	471	472	474	475	476	478	479	480
0.3350	0.2550	0.2900	0.3750	0.3700	0.3300	0.2850	0.2750	0.2650	0.3350	0.4000
2.3734	2.3178	2.2250	2.2034	2.3211	2.3887	2.3388	2.2418	2.1835	2.3338	2.4927
0.0845	0.0329	0.0348	0.0396	0.0394	0.0319	0.0340	0.0375	0.0258	0.0329	0.0396
0.1997	0.2060	0.1380	0.1536	0.1316	0.1520	0.1247	0.0911	0.0995	0.0863	0.0923
0.0311	0.0304	0.0359	0.0320	0.0293	0.0297	0.0339	0.0357	0.0219	0.0238	0.0345
0.5279	0.5506	0.5659	0.5705	0.5678	0.5586	0.5538	0.5357	0.5193	0.6195	0.7027
0.2334	0.2236	0.2241	0.2277	0.2228	0.2219	0.2309	0.2288	0.2347	0.2409	0.2403
0.0473	0.0678	0.0975	0.1127	0.1040	0.0920	0.0898	0.0874	0.0577	0.0566	0.0628
2.6745	2.8630	3.0916	3.1151	2.9525	2.8126	2.8559	2.8728	2.6633	2.6968	2.7558
0.0076	0.0074	0.0073	0.0074	0.0072	0.0074	0.0077	0.0075	0.0076	0.0077	0.0079
0.0009	0.0009	0.0007	0.0009	0.0011	0.0009	0.0008	0.0009	0.0008	0.0007	0.0008
0.0073	0.0072	0.0073	0.0071	0.0072	0.0072	0.0073	0.0074	0.0075	0.0074	0.0073
0.0050	0.0049	0.0049	0.0049	0.0051	0.0051	0.0051	0.0051	0.0052	0.0053	0.0053
0.0025	0.0027	0.0026	0.0024	0.0023	0.0024	0.0024	0.0025	0.0025	0.0024	0.0024
0.0134	0.0133	0.0127	0.0129	0.0128	0.0127	0.0123	0.0122	0.0133	0.0134	0.0138
0.0015	0.0015	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0018	0.0017	0.0016
0.0011	0.0012	0.0015	0.0014	0.0012	0.0013	0.0013	0.0012	0.0013	0.0013	0.0012

735	734	733	732	731	730	729	728	727	726	725
446	448	449	451	452	454	456	458	460	462	464
0.2750	0.2800	0.3550	0.3950	0.3450	0.3150	0.3200	0.3550	0.4050	0.4050	0.3850
2.4569	2.2726	2.1288	2.4097	2.4843	2.5097	2.3807	2.4051	2.3268	2.0725	2.2128
0.0791	0.0379	0.0404	0.0362	0.0330	0.0362	0.0388	0.0352	0.0386	0.0406	0.0852
0.0858	0.0644	0.1027	0.0800	0.0323	0.0572	0.0894	0.0975	0.1406	0.1509	0.1097
0.0343	0.0332	0.0289	0.0375	0.0419	0.0386	0.0395	0.0339	0.0334	0.0400	0.0407
0.4500	0.5819	0.5855	0.5187	0.6280	0.6524	0.5865	0.5458	0.4986	0.5073	0.5246
0.2176	0.2038	0.1867	0.2247	0.2406	0.2512	0.2358	0.2275	0.2264	0.2083	0.2210
0.0577	0.1623	0.1731	0.0640	0.0558	0.0430	0.0640	0.0655	0.0693	0.1322	0.0995
2.9837	3.2096	3.2442	2.4414	2.4298	2.5327	2.7217	2.7254	2.6628	2.7282	2.6575
0.0066	0.0069	0.0068	0.0071	0.0071	0.0070	0.0073	0.0078	0.0076	0.0069	0.0073
0.0009	0.0013	0.0013	0.0008	0.0005	0.0004	0.0007	0.0008	0.0009	0.0011	0.0009
0.0068	0.0061	0.0063	0.0072	0.0072	0.0073	0.0073	0.0074	0.0072	0.0069	0.0073
0.0049	0.0047	0.0046	0.0049	0.0052	0.0054	0.0053	0.0052	0.0050	0.0046	0.0049
0.0026	0.0029	0.0027	0.0025	0.0027	0.0026	0.0024	0.0024	0.0025	0.0025	0.0025
0.0152	0.0124	0.0106	0.0143	0.0154	0.0157	0.0139	0.0138	0.0134	0.0119	0.0126
0.0015	0.0011	0.0013	0.0016	0.0016	0.0016	0.0015	0.0015	0.0015	0.0012	0.0014
0.0010	0.0009	0.0010	0.0013	0.0014	0.0014	0.0011	0.0012	0.0013	0.0010	0.0010

746	745	744	743	742	741	740	739	738	737	736
427	428	430	432	434	436	438	439	441	443	444
0.4150	0.3900	0.2650	0.2900	0.3850	0.3550	0.3550	0.3674	0.2974	0.3300	0.3400
2.7448	2.5826	2.4017	2.4108	2.4048	2.4556	2.6434	1.8557	1.6624	2.4776	2.4640
0.0446	0.0390	0.0378	0.0365	0.0493	0.0511	0.0360	0.0407	0.0358	0.0271	0.0778
0.0364	0.0391	0.0657	0.0742	0.0550	0.0484	0.0287	0.0654	0.0792	0.0745	0.1044
0.0378	0.0366	0.0395	0.0365	0.0348	0.0404	0.0391	0.0295	0.0329	0.0401	0.0334
0.6739	0.7068	0.6020	0.5454	0.5383	0.5880	0.5899	1.1570	1.1096	0.4906	0.4577
0.2485	0.2319	0.2217	0.2158	0.2160	0.2484	0.2630	0.1713	0.1597	0.2385	0.2154
0.0452	0.0614	0.0699	0.0758	0.0680	0.0552	0.0430	0.2968	0.2892	0.0232	0.0483
2.6752	2.8594	2.9173	2.8505	2.6247	2.4563	2.3048	7.3175	7.3963	2.4430	3.0024
0.0074	0.0077	0.0072	0.0071	0.0074	0.0067	0.0069	0.0058	0.0057	0.0077	0.0070
0.0004	0.0008	0.0007	0.0006	0.0008	0.0008	0.0005	0.0002	0.0004	0.0008	0.0008
0.0073	0.0073	0.0071	0.0072	0.0073	0.0069	0.0071	0.0051	0.0051	0.0078	0.0074
0.0055	0.0057	0.0054	0.0050	0.0050	0.0051	0.0051	0.0050	0.0050	0.0055	0.0052
0.0027	0.0027	0.0025	0.0024	0.0024	0.0028	0.0028	0.0024	0.0023	0.0025	0.0025
0.0166	0.0158	0.0151	0.0123	0.0123	0.0168	0.0168	0.0106	0.0094	0.0140	0.0141
0.0017	0.0016	0.0015	0.0014	0.0013	0.0017	0.0018	0.0009	0.0009	0.0019	0.0018
0.0015	0.0013	0.0012	0.0012	0.0012	0.0012	0.0015	0.0008	0.0006	0.0013	0.0013

757	756	755	754	753	752	751	750	749	748	747
420	420.5	421	421.5	422	423	423	424	424	425	426
0.3800	0.3900	0.3850	0.4050	0.4750	0.5350	0.3900	0.3050	0.4050	0.4150	0.3600
2.7581	2.7212	2.7137	2.8445	2.8176	2.6619	2.7784	2.8744	2.7309	2.4275	2.5382
0.0363	0.0324	0.0354	0.0390	0.0383	0.0353	0.0386	0.0417	0.0390	0.0347	0.0417
0.0348	0.0498	0.0470	0.0274	0.0529	0.0870	0.0573	0.0420	0.0943	0.1104	0.0605
0.0379	0.0374	0.0342	0.0369	0.0315	0.0262	0.0315	0.0360	0.0324	0.0310	0.0366
0.5478	0.5411	0.5560	0.5667	0.5406	0.5332	0.5226	0.5397	0.4807	0.4599	0.5298
0.2469	0.2504	0.2606	0.2705	0.2727	0.2521	0.2512	0.2683	0.2660	0.2492	0.2450
0.0347	0.0311	0.0337	0.0357	0.0392	0.0446	0.0400	0.0338	0.0306	0.0323	0.0320
2.4775	2.4966	2.5008	2.4432	2.7082	2.9893	2.7187	2.5916	2.7160	2.7476	2.6503
0.0076	0.0077	0.0073	0.0071	0.0075	0.0076	0.0074	0.0075	0.0082	0.0082	0.0075
0.0006	0.0007	0.0004	0.0004	0.0007	0.0006	0.0006	0.0006	0.0007	0.0008	0.0005
0.0073	0.0074	0.0072	0.0069	0.0074	0.0076	0.0071	0.0072	0.0078	0.0080	0.0076
0.0053	0.0054	0.0052	0.0052	0.0054	0.0054	0.0052	0.0053	0.0054	0.0055	0.0055
0.0028	0.0028	0.0029	0.0028	0.0029	0.0026	0.0026	0.0028	0.0027	0.0026	0.0027
0.0158	0.0159	0.0172	0.0179	0.0156	0.0128	0.0149	0.0165	0.0151	0.0150	0.0156
0.0017	0.0016	0.0018	0.0018	0.0017	0.0017	0.0018	0.0019	0.0019	0.0017	0.0016
0.0012	0.0012	0.0013	0.0012	0.0012	0.0014	0.0013	0.0012	0.0013	0.0013	0.0013

768	767	766	765	764	763	762	761	760	759	758
414	415	415	416	417	417	418	418	419	419	420
0.3950	0.3600	0.2950	0.2900	0.2950	0.2900	0.3150	0.3650	0.3650	0.3750	0.3800
2.6801	2.3407	1.9693	2.0548	2.2202	2.3920	2.5501	2.3770	2.2795	2.4270	2.6285
0.0366	0.0407	0.0516	0.0614	0.0461	0.0338	0.0429	0.0412	0.0367	0.0349	0.0365
0.0717	0.1774	0.1540	0.0474	0.0476	0.0608	0.0720	0.0625	0.0397	0.0246	0.0281
0.0321	0.0256	0.0244	0.0353	0.0377	0.0396	0.0393	0.0326	0.0360	0.0410	0.0372
0.7258	0.7768	0.9471	0.9530	0.6650	0.6234	0.5733	0.5667	0.6301	0.6054	0.5131
0.2258	0.2026	0.1942	0.2104	0.2299	0.2481	0.2473	0.2275	0.2249	0.2414	0.2545
0.0564	0.1218	0.1586	0.1050	0.0666	0.0566	0.0510	0.0615	0.0637	0.0476	0.0323
3.1414	3.7771	4.4500	3.9889	3.2136	2.9725	2.8334	2.9447	2.9117	2.7179	2.4827
0.0070	0.0069	0.0065	0.0053	0.0066	0.0073	0.0066	0.0070	0.0070	0.0071	0.0076
0.0008	0.0014	0.0012	0.0006	0.0007	0.0007	0.0007	0.0006	0.0006	0.0007	0.0007
0.0072	0.0068	0.0064	0.0054	0.0062	0.0071	0.0069	0.0069	0.0069	0.0072	0.0074
0.0054	0.0051	0.0052	0.0050	0.0051	0.0052	0.0049	0.0051	0.0053	0.0054	0.0054
0.0027	0.0026	0.0028	0.0028	0.0026	0.0026	0.0026	0.0027	0.0029	0.0029	0.0028
0.0148	0.0129	0.0123	0.0177	0.0178	0.0157	0.0168	0.0163	0.0170	0.0171	0.0164
0.0018	0.0016	0.0014	0.0015	0.0016	0.0012	0.0013	0.0017	0.0018	0.0017	0.0018
0.0011	0.0011	0.0011	0.0008	0.0010	0.0012	0.0012	0.0012	0.0013	0.0013	0.0012

779	778	777	776	775	774	773	772	771	770	769
410	410	411	411	412	412	412	413	413	414	414
0.4500	0.4150	0.4150	0.4050	0.4350	0.5050	0.5150	0.4350	0.4200	0.4000	0.3700
2.2518	2.4098	2.5812	2.5943	2.6929	2.6284	2.7212	2.8850	2.7286	2.6212	2.6864
0.0396	0.0341	0.0381	0.0422	0.0432	0.0403	0.0408	0.0426	0.0374	0.0343	0.0340
0.1045	0.0727	0.0628	0.0522	0.0870	0.0834	0.0573	0.0568	0.0414	0.0604	0.0660
0.0286	0.0277	0.0311	0.0297	0.0264	0.0313	0.0363	0.0342	0.0276	0.0308	0.0328
0.5572	0.5081	0.4930	0.5234	0.5228	0.4899	0.4956	0.4980	0.5091	0.5073	0.5039
0.2046	0.2261	0.2439	0.2411	0.2347	0.2229	0.2368	0.2570	0.2501	0.2458	0.2463
0.0692	0.0558	0.0361	0.0382	0.0394	0.0397	0.0321	0.0278	0.0441	0.0489	0.0367
3.4732	3.0718	2.7185	2.6855	2.8178	3.0276	2.8032	2.5846	2.7643	2.8623	2.7774
0.0073	0.0072	0.0074	0.0079	0.0080	0.0080	0.0080	0.0077	0.0076	0.0073	0.0073
0.0008	0.0006	0.0006	0.0006	0.0006	0.0007	0.0008	0.0007	0.0007	0.0008	0.0008
0.0074	0.0070	0.0072	0.0075	0.0075	0.0080	0.0078	0.0075	0.0076	0.0077	0.0079
0.0051	0.0050	0.0053	0.0054	0.0053	0.0054	0.0051	0.0052	0.0054	0.0051	0.0053
0.0027	0.0025	0.0025	0.0026	0.0027	0.0026	0.0026	0.0028	0.0028	0.0027	0.0026
0.0109	0.0141	0.0168	0.0162	0.0152	0.0127	0.0145	0.0167	0.0159	0.0149	0.0140
0.0017	0.0017	0.0016	0.0018	0.0017	0.0018	0.0020	0.0018	0.0017	0.0016	0.0017
0.0014	0.0015	0.0014	0.0014	0.0014	0.0013	0.0012	0.0013	0.0013	0.0013	0.0014

790	789	788	787	786	785	784	783	782	781	780
404.5	405	406	406	407	407	407.5	408	408	409	409
0.3200	0.3700	0.4350	0.3750	0.3400	0.3750	0.3800	0.3450	0.4000	0.4200	0.4350
2.3242	2.5105	2.5265	2.5929	2.7940	2.6603	2.4590	2.5110	2.4081	2.5978	2.5655
0.0329	0.0409	0.0383	0.0389	0.0440	0.0440	0.0406	0.0356	0.0307	0.0351	0.0422
0.0698	0.0780	0.0674	0.0971	0.1318	0.1040	0.0999	0.0845	0.0667	0.0610	0.0968
0.0369	0.0443	0.0399	0.0351	0.0314	0.0318	0.0306	0.0285	0.0297	0.0373	0.0360
0.5468	0.5835	0.5866	0.7286	0.7343	0.5301	0.4856	0.5849	0.6042	0.5656	0.5720
0.2368	0.2414	0.2284	0.2357	0.2494	0.2446	0.2332	0.2353	0.2431	0.2518	0.2275
0.0503	0.0511	0.0465	0.0465	0.0466	0.0344	0.0372	0.0414	0.0492	0.0450	0.0474
2.9148	2.8107	2.7653	2.7535	2.6691	2.5768	2.7879	2.7517	3.0355	2.9570	3.0912
0.0076	0.0075	0.0074	0.0072	0.0072	0.0080	0.0083	0.0076	0.0078	0.0079	0.0076
0.0008	0.0007	0.0005	0.0005	0.0009	0.0008	0.0008	0.0008	0.0008	0.0007	0.0008
0.0071	0.0073	0.0073	0.0072	0.0073	0.0079	0.0079	0.0069	0.0074	0.0076	0.0075
0.0052	0.0052	0.0053	0.0055	0.0056	0.0054	0.0055	0.0058	0.0057	0.0054	0.0052
0.0026	0.0027	0.0028	0.0027	0.0029	0.0028	0.0025	0.0026	0.0025	0.0027	0.0028
0.0167	0.0174	0.0155	0.0154	0.0162	0.0156	0.0144	0.0168	0.0144	0.0149	0.0143
0.0016	0.0018	0.0016	0.0016	0.0019	0.0020	0.0018	0.0020	0.0022	0.0020	0.0016
0.0014	0.0013	0.0014	0.0015	0.0011	0.0012	0.0013	0.0011	0.0012	0.0013	0.0013

801	800	799	798	797	796	795	794	793	792	791
399	400	400	401	401	402	402	403	403	404	404
0.2800	0.3200	0.2800	0.3050	0.4550	0.4700	0.3150	0.2600	0.3100	0.3650	0.3850
2.0555	2.3194	2.0400	2.1057	2.5171	2.6864	2.6199	2.4707	2.3413	2.5588	2.4124
0.0285	0.0313	0.0288	0.0325	0.0326	0.0313	0.0351	0.0364	0.0367	0.0355	0.0302
0.0902	0.0896	0.0576	0.0852	0.0880	0.0404	0.0259	0.0357	0.0513	0.0344	0.0490
0.0273	0.0324	0.0357	0.0303	0.0324	0.0339	0.0301	0.0372	0.0359	0.0323	0.0308
0.5463	0.5087	0.4278	0.4332	0.4778	0.4912	0.5562	0.7210	0.6974	0.5737	0.5424
0.2150	0.2308	0.2315	0.2352	0.2363	0.2515	0.2621	0.2617	0.2664	0.2748	0.2404
0.0647	0.0411	0.0306	0.0432	0.0493	0.0417	0.0462	0.0546	0.0505	0.0366	0.0489
3.1716	2.9661	2.6713	2.7338	2.8831	2.7400	2.6522	2.7482	2.8972	2.6665	2.9741
0.0078	0.0081	0.0077	0.0079	0.0086	0.0083	0.0071	0.0064	0.0072	0.0077	0.0078
0.0010	0.0008	0.0007	0.0007	0.0007	0.0008	0.0008	0.0005	0.0007	0.0004	0.0006
0.0076	0.0081	0.0078	0.0079	0.0082	0.0078	0.0068	0.0062	0.0068	0.0077	0.0078
0.0052	0.0054	0.0053	0.0052	0.0053	0.0053	0.0053	0.0054	0.0054	0.0056	0.0055
0.0025	0.0025	0.0027	0.0028	0.0028	0.0027	0.0029	0.0030	0.0029	0.0028	0.0027
0.0115	0.0118	0.0144	0.0151	0.0129	0.0136	0.0190	0.0211	0.0183	0.0167	0.0134
0.0016	0.0016	0.0018	0.0018	0.0016	0.0017	0.0019	0.0020	0.0019	0.0020	0.0017
0.0013	0.0015	0.0015	0.0015	0.0015	0.0014	0.0012	0.0011	0.0013	0.0016	0.0015

812	811	810	809	808	807	806	805	804	803	802
394	394	395	395	396	396	397	397	398	398	399
0.5300	0.5600	0.5950	0.5950	0.5600	0.5450	0.5000	0.4800	0.5400	0.4650	0.3200
2.8516	2.7932	2.7622	2.5809	2.7042	3.0885	2.9260	2.8326	2.8099	2.5947	2.0835
0.0327	0.0327	0.0317	0.0277	0.0282	0.0342	0.0351	0.0407	0.0478	0.0412	0.0294
0.0696	0.0656	0.0519	0.0142	0.0115	0.0300	0.0568	0.0630	0.0422	0.0459	0.0671
0.0207	0.0289	0.0315	0.0184	0.0171	0.0276	0.0257	0.0237	0.0218	0.0233	0.0271
0.6098	0.5705	0.6021	0.6311	0.5732	0.6169	0.6201	0.5913	0.8306	0.7775	0.5294
0.2363	0.2493	0.2412	0.2354	0.2478	0.2604	0.2498	0.2375	0.2246	0.2300	0.2148
0.0491	0.0451	0.0578	0.0666	0.0428	0.0315	0.0410	0.0408	0.0687	0.0737	0.0662
2.9558	2.8288	2.9474	3.0925	2.6726	2.2448	2.5016	2.7225	3.3397	3.5080	3.2439
0.0079	0.0081	0.0077	0.0083	0.0083	0.0074	0.0074	0.0075	0.0070	0.0073	0.0078
0.0007	0.0006	0.0007	0.0008	0.0008	0.0006	0.0005	0.0006	0.0006	0.0006	0.0009
0.0073	0.0077	0.0079	0.0076	0.0074	0.0068	0.0069	0.0072	0.0064	0.0070	0.0075
0.0054	0.0056	0.0056	0.0055	0.0055	0.0054	0.0053	0.0054	0.0055	0.0055	0.0052
0.0026	0.0027	0.0026	0.0028	0.0029	0.0028	0.0029	0.0026	0.0028	0.0027	0.0024
0.0153	0.0161	0.0149	0.0146	0.0174	0.0211	0.0191	0.0174	0.0180	0.0157	0.0122
0.0018	0.0019	0.0019	0.0019	0.0020	0.0019	0.0018	0.0018	0.0017	0.0016	0.0014
0.0012	0.0015	0.0014	0.0013	0.0013	0.0014	0.0013	0.0013	0.0012	0.0011	0.0012

823	822	821	820	819	818	817	816	815	814	813
384	384.5	386	387	388	389	390	391	391	392	393
0.3500	0.3650	0.4000	0.3500	0.3600	0.3750	0.4650	0.5950	0.5400	0.4500	0.4950
2.2913	2.3101	2.4460	2.7474	2.6947	2.7333	3.0879	3.1473	3.1401	3.1185	2.9666
0.0299	0.0353	0.0361	0.0300	0.0305	0.0309	0.0315	0.0344	0.0332	0.0334	0.0325
0.0970	0.0950	0.0845	0.0801	0.0903	0.0777	0.0860	0.0855	0.0513	0.0390	0.0606
0.0294	0.0259	0.0252	0.0299	0.0364	0.0373	0.0276	0.0188	0.0238	0.0301	0.0240
0.6041	0.6242	0.5911	0.5610	0.5639	0.5709	0.6137	0.6089	0.5889	0.5842	0.5959
0.2207	0.2181	0.2321	0.2594	0.2511	0.2378	0.2415	0.2407	0.2478	0.2526	0.2343
0.0532	0.0627	0.0551	0.0363	0.0406	0.0541	0.0522	0.0436	0.0438	0.0367	0.0404
3.4597	3.8084	3.4623	2.7013	2.8630	3.2884	3.2917	3.0668	2.9120	2.6991	2.8393
0.0072	0.0072	0.0078	0.0079	0.0079	0.0076	0.0070	0.0073	0.0075	0.0074	0.0074
0.0008	0.0009	0.0010	0.0008	0.0008	0.0006	0.0006	0.0008	0.0007	0.0006	0.0008
0.0073	0.0073	0.0075	0.0077	0.0077	0.0074	0.0073	0.0073	0.0070	0.0072	0.0074
0.0054	0.0053	0.0055	0.0056	0.0056	0.0056	0.0055	0.0054	0.0055	0.0055	0.0054
0.0024	0.0027	0.0027	0.0026	0.0027	0.0028	0.0029	0.0026	0.0026	0.0027	0.0026
0.0147	0.0135	0.0145	0.0170	0.0165	0.0156	0.0156	0.0157	0.0169	0.0171	0.0150
0.0015	0.0014	0.0015	0.0019	0.0018	0.0016	0.0017	0.0017	0.0020	0.0020	0.0018
0.0013	0.0011	0.0011	0.0013	0.0013	0.0013	0.0014	0.0012	0.0012	0.0014	0.0012

834	833	832	831	830	829	828	827	826	825	824
372	373	374	375	376	377	378	379	380	381	383
0.4350	0.4300	0.3250	0.3700	0.4000	0.3500	0.3900	0.3300	0.2650	0.3950	0.4650
2.5186	2.5554	2.6892	2.7209	2.8924	2.8731	2.7867	2.7286	2.5083	2.6655	2.6124
0.0362	0.0355	0.0409	0.0360	0.0328	0.0357	0.0391	0.0358	0.0296	0.0304	0.0298
0.0758	0.0745	0.1000	0.1078	0.0801	0.0995	0.1251	0.1067	0.0833	0.0796	0.0913
0.0259	0.0232	0.0289	0.0333	0.0316	0.0266	0.0273	0.0288	0.0323	0.0278	0.0253
0.5265	0.5402	0.5498	0.5577	0.5818	0.5880	0.5804	0.6035	0.6279	0.6232	0.6104
0.2300	0.2343	0.2566	0.2523	0.2602	0.2634	0.2613	0.2564	0.2442	0.2428	0.2297
0.0361	0.0361	0.0293	0.0300	0.0316	0.0328	0.0324	0.0366	0.0439	0.0475	0.0517
3.1001	3.0734	2.7567	2.7093	2.6426	2.6085	2.6743	2.9355	3.1751	3.1789	3.3110
0.0081	0.0080	0.0075	0.0077	0.0079	0.0078	0.0077	0.0076	0.0079	0.0080	0.0077
0.0007	0.0009	0.0008	0.0007	0.0006	0.0006	0.0007	0.0008	0.0008	0.0009	0.0009
0.0078	0.0078	0.0073	0.0072	0.0074	0.0074	0.0074	0.0075	0.0075	0.0075	0.0075
0.0054	0.0053	0.0053	0.0055	0.0056	0.0055	0.0054	0.0054	0.0055	0.0055	0.0055
0.0027	0.0027	0.0027	0.0029	0.0030	0.0029	0.0027	0.0028	0.0029	0.0028	0.0026
0.0131	0.0139	0.0170	0.0173	0.0173	0.0172	0.0173	0.0161	0.0150	0.0151	0.0151
0.0018	0.0018	0.0018	0.0019	0.0020	0.0020	0.0020	0.0018	0.0014	0.0016	0.0017
0.0012	0.0012	0.0015	0.0015	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013

845	844	843	842	841	840	839	838	837	836	835
359	360	361.5	363	364	365	367	368	369	370	371
0.3800	0.4650	0.3900	0.3550	0.3450	0.2850	0.3750	0.4000	0.3900	0.4200	0.4100
2.6585	2.7877	2.6397	2.5240	2.5783	2.6036	2.6592	2.7753	2.7119	2.5990	2.6605
0.0407	0.0394	0.0460	0.0488	0.0449	0.0419	0.0341	0.0315	0.0340	0.0377	0.0405
0.0852	0.0766	0.0886	0.1082	0.1289	0.0987	0.1109	0.1264	0.0938	0.0725	0.0656
0.0281	0.0266	0.0287	0.0277	0.0319	0.0346	0.0262	0.0249	0.0287	0.0308	0.0311
0.5188	0.5269	0.5235	0.5239	0.4698	0.4365	0.4590	0.4605	0.5033	0.5781	0.5653
0.2546	0.2531	0.2448	0.2493	0.2427	0.2301	0.2380	0.2582	0.2498	0.2393	0.2515
0.0360	0.0335	0.0361	0.0460	0.0412	0.0342	0.0345	0.0312	0.0318	0.0395	0.0367
2.9368	2.7725	2.7396	2.9782	2.9346	2.8896	3.0034	2.8024	2.7096	2.9133	2.9115
0.0074	0.0074	0.0073	0.0077	0.0077	0.0076	0.0082	0.0083	0.0077	0.0075	0.0076
0.0008	0.0008	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	0.0007	0.0006	0.0006
0.0075	0.0074	0.0070	0.0069	0.0068	0.0073	0.0082	0.0083	0.0074	0.0071	0.0075
0.0054	0.0054	0.0054	0.0053	0.0052	0.0051	0.0052	0.0053	0.0052	0.0053	0.0054
0.0029	0.0029	0.0027	0.0028	0.0027	0.0025	0.0027	0.0027	0.0027	0.0026	0.0025
0.0176	0.0180	0.0188	0.0179	0.0170	0.0153	0.0129	0.0139	0.0157	0.0162	0.0159
0.0017	0.0017	0.0019	0.0018	0.0015	0.0014	0.0012	0.0015	0.0021	0.0020	0.0018
0.0012	0.0012	0.0013	0.0013	0.0014	0.0013	0.0012	0.0012	0.0012	0.0014	0.0014

856	855	854	853	852	851	850	849	848	847	846
351	352	352	353	353.5	354	355	356	356	357	358
0.3500	0.3150	0.3550	0.3350	0.3250	0.3350	0.3550	0.3500	0.3050	0.3450	0.3350
2.4193	2.3779	2.4332	2.3674	2.2964	2.5490	2.6286	2.5228	2.6241	2.6910	2.6322
0.0332	0.0315	0.0330	0.0322	0.0299	0.0298	0.0335	0.0361	0.0329	0.0315	0.0364
0.0750	0.0798	0.0803	0.0705	0.0562	0.0708	0.0625	0.0416	0.0750	0.0997	0.0988
0.0328	0.0307	0.0323	0.0328	0.0321	0.0297	0.0275	0.0303	0.0321	0.0274	0.0259
0.5648	0.5559	0.5518	0.5434	0.5451	0.5721	0.5686	0.5767	0.5540	0.5017	0.4996
0.2585	0.2679	0.2516	0.2423	0.2437	0.2462	0.2438	0.2422	0.2549	0.2544	0.2506
0.0404	0.0377	0.0362	0.0380	0.0401	0.0454	0.0466	0.0440	0.0371	0.0344	0.0359
2.8060	2.7446	2.8144	2.8598	2.8113	2.9976	3.1198	2.9346	2.6817	2.7590	2.9060
0.0077	0.0076	0.0074	0.0074	0.0073	0.0073	0.0074	0.0075	0.0076	0.0073	0.0071
0.0007	0.0008	0.0007	0.0007	0.0006	0.0006	0.0007	0.0007	0.0007	0.0006	0.0006
0.0072	0.0071	0.0070	0.0071	0.0070	0.0071	0.0072	0.0072	0.0072	0.0072	0.0073
0.0053	0.0053	0.0052	0.0051	0.0051	0.0052	0.0053	0.0051	0.0051	0.0052	0.0052
0.0028	0.0027	0.0026	0.0028	0.0028	0.0028	0.0028	0.0028	0.0027	0.0029	0.0029
0.0164	0.0169	0.0172	0.0163	0.0160	0.0164	0.0164	0.0172	0.0176	0.0176	0.0178
0.0017	0.0018	0.0016	0.0015	0.0017	0.0018	0.0017	0.0017	0.0018	0.0020	0.0019
0.0014	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0015	0.0014	0.0015	0.0014

867	866	865	864	863	862	861	860	859	858	857
345	346	346	347	347	348	348	349	349	350	350
0.3600	0.3200	0.3350	0.3250	0.3750	0.3800	0.3450	0.3300	0.3750	0.3300	0.3000
2.4759	2.1950	2.0977	2.2762	2.2340	2.2444	2.3885	2.3819	2.4044	2.4567	2.4205
0.0293	0.0238	0.0277	0.0262	0.0286	0.0325	0.0343	0.0336	0.0332	0.0350	0.0354
0.0974	0.0605	0.0528	0.0570	0.0619	0.0822	0.0789	0.0953	0.0852	0.0716	0.0836
0.0279	0.0307	0.0299	0.0315	0.0332	0.0403	0.0360	0.0271	0.0292	0.0325	0.0356
0.6111	0.9071	1.0337	0.7608	0.5678	0.5244	0.5434	0.5167	0.5156	0.5374	0.5566
0.2593	0.2117	0.2005	0.2350	0.2459	0.2525	0.2586	0.2615	0.2472	0.2459	0.2494
0.0403	0.0815	0.0846	0.0396	0.0295	0.0284	0.0330	0.0324	0.0309	0.0343	0.0386
2.7184	4.0745	4.1631	2.6214	2.4733	2.5119	2.6075	2.5862	2.6378	2.8090	2.8158
0.0076	0.0068	0.0069	0.0077	0.0075	0.0076	0.0079	0.0078	0.0072	0.0074	0.0076
0.0004	0.0000	0.0004	0.0007	0.0007	0.0007	0.0007	0.0008	0.0007	0.0006	0.0005
0.0074	0.0063	0.0063	0.0073	0.0075	0.0075	0.0073	0.0072	0.0071	0.0071	0.0071
0.0055	0.0053	0.0053	0.0053	0.0052	0.0053	0.0054	0.0052	0.0051	0.0052	0.0053
0.0027	0.0026	0.0026	0.0026	0.0027	0.0028	0.0029	0.0028	0.0028	0.0028	0.0027
0.0161	0.0152	0.0147	0.0151	0.0151	0.0157	0.0164	0.0168	0.0169	0.0165	0.0160
0.0016	0.0014	0.0015	0.0016	0.0016	0.0017	0.0018	0.0018	0.0017	0.0017	0.0017
0.0014	0.0013	0.0012	0.0014	0.0014	0.0012	0.0012	0.0012	0.0012	0.0013	0.0014

878	877	876	875	874	873	872	871	870	869	868
339	340	340	341	341	342	342	343	343	344	344
0.2800	0.3250	0.3800	0.3950	0.3200	0.3450	0.4050	0.3750	0.3700	0.3700	0.4050
2.4068	2.4751	2.1336	2.0855	2.6851	2.7875	2.5141	2.4904	2.4312	2.4628	2.5531
0.0325	0.0331	0.1418	0.1388	0.0370	0.0390	0.0292	0.0191	0.0217	0.0272	0.0313
0.0738	0.0648	0.0508	0.0469	0.0488	0.0448	0.0534	0.0673	0.1722	0.2053	0.1295
0.0300	0.0294	0.0282	0.0289	0.0316	0.0340	0.0347	0.0302	0.0263	0.0270	0.0258
0.8947	0.7544	0.5935	0.5042	0.6051	0.5909	0.4728	0.4420	0.4499	0.5149	0.5897
0.2390	0.2493	0.2027	0.1910	0.2434	0.2527	0.2471	0.2513	0.2527	0.2517	0.2593
0.0382	0.0327	0.0381	0.0360	0.0257	0.0242	0.0258	0.0271	0.0337	0.0400	0.0410
2.4733	2.3596	3.8939	4.0408	2.4670	2.2855	2.4676	2.4808	2.6613	2.6858	2.6855
0.0072	0.0072	0.0074	0.0075	0.0074	0.0073	0.0081	0.0082	0.0085	0.0086	0.0078
0.0009	0.0005	0.0003	0.0007	0.0006	0.0006	0.0006	0.0006	0.0007	0.0007	0.0007
0.0067	0.0068	0.0071	0.0072	0.0069	0.0066	0.0076	0.0080	0.0079	0.0077	0.0074
0.0057	0.0054	0.0051	0.0052	0.0055	0.0054	0.0055	0.0055	0.0053	0.0054	0.0056
0.0028	0.0026	0.0025	0.0026	0.0027	0.0028	0.0028	0.0027	0.0027	0.0027	0.0028
0.0170	0.0168	0.0155	0.0139	0.0174	0.0199	0.0170	0.0151	0.0141	0.0145	0.0159
0.0020	0.0019	0.0019	0.0018	0.0017	0.0020	0.0021	0.0017	0.0018	0.0019	0.0017
0.0012	0.0014	0.0014	0.0012	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013

889	888	887	886	885	884	883	882	881	880	879
330	331	332	333	334	335	336	336	337	338	338
0.3500	0.3900	0.3050	0.2600	0.3050	0.2450	0.2850	0.3150	0.3250	0.3200	0.2450
2.7576	2.6740	2.2492	1.6093	1.7778	2.2326	2.2606	2.3536	2.4175	2.1658	2.1535
0.0290	0.0328	0.1029	0.1363	0.0643	0.0294	0.0277	0.0275	0.0275	0.0296	0.0332
0.0457	0.0457	0.0715	0.0737	0.0455	0.0521	0.0588	0.0590	0.0681	0.0590	0.0636
0.0339	0.0366	0.0336	0.0310	0.0341	0.0345	0.0315	0.0356	0.0347	0.0289	0.0305
0.6755	0.6813	0.5683	0.4452	0.4831	0.5244	0.5214	0.5586	0.6844	1.1796	1.2932
0.2625	0.2603	0.2136	0.1419	0.1825	0.2567	0.2532	0.2542	0.2501	0.2202	0.2189
0.0350	0.0399	0.0483	0.0529	0.0467	0.0362	0.0320	0.0333	0.0353	0.0665	0.0701
2.5033	2.6940	3.4179	4.0831	3.5243	2.7582	2.6172	2.6268	2.5827	3.2850	3.4077
0.0071	0.0074	0.0066	0.0050	0.0063	0.0082	0.0082	0.0080	0.0082	0.0075	0.0071
0.0007	0.0006	0.0008	0.0015	0.0013	0.0005	0.0006	0.0007	0.0008	0.0004	0.0004
0.0067	0.0069	0.0065	0.0047	0.0053	0.0074	0.0078	0.0080	0.0075	0.0064	0.0065
0.0056	0.0057	0.0051	0.0040	0.0043	0.0055	0.0055	0.0055	0.0056	0.0058	0.0060
0.0030	0.0029	0.0026	0.0021	0.0024	0.0029	0.0028	0.0027	0.0026	0.0026	0.0028
0.0205	0.0196	0.0158	0.0114	0.0120	0.0149	0.0151	0.0148	0.0150	0.0149	0.0160
0.0018	0.0019	0.0015	0.0013	0.0017	0.0019	0.0017	0.0017	0.0018	0.0015	0.0017
0.0011	0.0014	0.0014	0.0010	0.0010	0.0015	0.0015	0.0014	0.0013	0.0013	0.0013

900	899	898	897	896	895	894	893	892	891	890
324	325	325	326	326	327	327	328	329	329	330
0.3100	0.3150	0.3100	0.3000	0.2650	0.3250	0.3700	0.4150	0.4000	0.3000	0.2900
2.1725	2.2538	2.3478	2.4815	2.4171	2.3090	2.3147	2.4327	2.7198	2.8903	2.8694
0.0239	0.0283	0.0450	0.0476	0.0325	0.0339	0.0295	0.0222	0.0345	0.0378	0.0290
0.0821	0.0737	0.0343	0.0274	0.0273	0.0340	0.0346	0.0375	0.0414	0.0399	0.0456
0.0295	0.0317	0.0355	0.0299	0.0342	0.0356	0.0263	0.0245	0.0358	0.0388	0.0335
0.4944	0.4787	0.6268	0.7511	0.7766	0.8046	0.7749	0.7195	0.7003	0.7098	0.6930
0.2436	0.2573	0.2551	0.2470	0.2470	0.2526	0.2501	0.2528	0.2733	0.2811	0.2692
0.0458	0.0432	0.0533	0.0550	0.0456	0.0438	0.0438	0.0409	0.0352	0.0336	0.0334
2.7878	2.8017	3.0407	2.9796	2.5872	2.6383	2.7213	2.5135	2.4193	2.5091	2.5030
0.0080	0.0082	0.0075	0.0074	0.0074	0.0070	0.0075	0.0077	0.0077	0.0077	0.0074
0.0006	0.0008	0.0007	0.0006	0.0006	0.0007	0.0007	0.0007	0.0006	0.0006	0.0007
0.0079	0.0079	0.0075	0.0074	0.0071	0.0069	0.0072	0.0068	0.0069	0.0073	0.0071
0.0056	0.0055	0.0055	0.0059	0.0059	0.0058	0.0059	0.0055	0.0055	0.0057	0.0056
0.0026	0.0027	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0029	0.0030	0.0029
0.0142	0.0142	0.0163	0.0188	0.0185	0.0173	0.0172	0.0192	0.0214	0.0215	0.0204
0.0017	0.0017	0.0017	0.0017	0.0018	0.0017	0.0018	0.0018	0.0017	0.0018	0.0017
0.0014	0.0014	0.0014	0.0015	0.0013	0.0011	0.0012	0.0013	0.0016	0.0015	0.0011

911	910	909	908	907	906	905	904	903	902	901
318	319	319	320	320	321	321	322	323	323	324
0.4000	0.3750	0.2900	0.3100	0.3700	0.3350	0.3100	0.3300	0.3400	0.3300	0.2850
2.3794	2.4376	2.0194	1.9569	2.2901	2.2681	2.2921	2.3468	2.4435	2.5825	2.3827
0.0299	0.0368	0.0358	0.0291	0.0304	0.0285	0.0286	0.0293	0.0276	0.0296	0.0265
0.0375	0.0521	0.0534	0.0268	0.0092	0.0223	0.0248	0.0330	0.0428	0.0334	0.0388
0.0395	0.0312	0.0357	0.0331	0.0302	0.0339	0.0308	0.0343	0.0370	0.0355	0.0362
0.5574	0.5371	0.5441	0.5712	0.5463	0.5178	0.5505	0.5210	0.5248	0.5508	0.5383
0.2439	0.2474	0.2392	0.2532	0.2458	0.2348	0.2451	0.2449	0.2539	0.2709	0.2544
0.0439	0.0510	0.0561	0.0543	0.0533	0.0531	0.0466	0.0369	0.0356	0.0351	0.0394
2.8270	3.0647	3.0461	2.8743	2.9412	2.9859	2.7524	2.5421	2.4188	2.4306	2.5818
0.0078	0.0080	0.0078	0.0071	0.0077	0.0085	0.0076	0.0073	0.0073	0.0071	0.0074
0.0006	0.0006	0.0007	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0008	0.0007
0.0075	0.0076	0.0075	0.0074	0.0076	0.0078	0.0075	0.0074	0.0071	0.0071	0.0077
0.0057	0.0056	0.0055	0.0055	0.0055	0.0055	0.0054	0.0053	0.0054	0.0058	0.0057
0.0029	0.0029	0.0030	0.0029	0.0029	0.0029	0.0029	0.0028	0.0027	0.0029	0.0028
0.0174	0.0158	0.0157	0.0172	0.0167	0.0153	0.0172	0.0180	0.0188	0.0209	0.0182
0.0020	0.0017	0.0020	0.0021	0.0020	0.0019	0.0019	0.0019	0.0016	0.0020	0.0021
0.0012	0.0014	0.0014	0.0013	0.0013	0.0014	0.0014	0.0013	0.0012	0.0013	0.0014

922	921	920	919	918	917	916	915	914	913	912
312	312	313	313	314	315	315	316	316	317	317
0.4050	0.3450	0.3500	0.3150	0.3250	0.3000	0.2350	0.2550	0.2300	0.2300	0.3100
2.3536	2.3438	2.5983	2.0111	2.0101	2.3574	2.3188	2.4799	2.4028	2.3524	2.2934
0.0299	0.0293	0.0322	0.0316	0.0288	0.0307	0.0354	0.0341	0.0406	0.0414	0.0309
0.0932	0.1008	0.0796	0.0541	0.0293	0.0342	0.0281	0.0416	0.0341	0.0142	0.0224
0.0312	0.0306	0.0314	0.0298	0.0305	0.0372	0.0389	0.0334	0.0365	0.0369	0.0387
0.4523	0.4280	0.4877	0.7209	0.7245	0.5419	0.5164	0.4769	0.4721	0.4855	0.5478
0.2450	0.2466	0.2644	0.2079	0.2076	0.2509	0.2390	0.2530	0.2305	0.2260	0.2381
0.0372	0.0379	0.0336	0.1169	0.1159	0.0492	0.0479	0.0328	0.0347	0.0346	0.0404
2.7006	2.7073	2.5651	5.1668	5.2471	3.0757	3.0154	2.6292	2.6063	2.6135	2.6575
0.0079	0.0080	0.0073	0.0060	0.0066	0.0076	0.0081	0.0084	0.0072	0.0065	0.0071
0.0007	0.0007	0.0006	0.0003	0.0004	0.0006	0.0005	0.0006	0.0006	0.0007	0.0006
0.0080	0.0080	0.0077	0.0062	0.0063	0.0075	0.0076	0.0078	0.0071	0.0069	0.0072
0.0052	0.0053	0.0054	0.0050	0.0052	0.0055	0.0054	0.0056	0.0053	0.0053	0.0056
0.0028	0.0029	0.0029	0.0028	0.0027	0.0029	0.0029	0.0028	0.0026	0.0026	0.0028
0.0141	0.0134	0.0166	0.0151	0.0144	0.0158	0.0157	0.0156	0.0155	0.0169	0.0181
0.0020	0.0018	0.0019	0.0013	0.0012	0.0015	0.0017	0.0020	0.0017	0.0017	0.0021
0.0015	0.0014	0.0014	0.0012	0.0012	0.0013	0.0014	0.0015	0.0013	0.0014	0.0013

933	932	931	930	929	928	927	926	925	924	923
305	306	306	307	307.5	308	309	309	310	310	311
0.3300	0.3400	0.3050	0.3250	0.3350	0.3650	0.3900	0.3350	0.3150	0.3050	0.3700
2.1503	2.2717	2.3558	2.3845	2.3917	2.2843	2.2433	2.1170	2.0886	2.1489	2.3608
0.0296	0.0326	0.0325	0.0257	0.0299	0.0806	0.0812	0.0314	0.0323	0.0302	0.0293
0.0503	0.0609	0.0578	0.0546	0.0742	0.0595	0.0123	0.0071	0.0215	0.0269	0.0424
0.0306	0.0324	0.0348	0.0346	0.0313	0.0340	0.0291	0.0309	0.0374	0.0350	0.0327
0.5175	0.4932	0.4906	0.5053	0.4918	0.4649	0.6525	0.7777	0.7514	0.6709	0.5279
0.2418	0.2330	0.2374	0.2423	0.2468	0.2397	0.2203	0.2087	0.2177	0.2277	0.2393
0.0421	0.0358	0.0326	0.0353	0.0362	0.0415	0.0877	0.1097	0.0956	0.0716	0.0390
2.7779	2.8056	2.7272	2.6458	2.8267	3.0978	3.7400	3.9042	3.5153	3.1155	2.6740
0.0076	0.0080	0.0078	0.0077	0.0077	0.0076	0.0071	0.0065	0.0072	0.0078	0.0077
0.0007	0.0006	0.0006	0.0007	0.0007	0.0007	0.0006	0.0006	0.0007	0.0006	0.0006
0.0075	0.0072	0.0071	0.0075	0.0078	0.0075	0.0070	0.0066	0.0067	0.0075	0.0079
0.0054	0.0054	0.0054	0.0055	0.0055	0.0056	0.0054	0.0052	0.0053	0.0052	0.0051
0.0026	0.0028	0.0028	0.0027	0.0028	0.0027	0.0028	0.0027	0.0026	0.0027	0.0027
0.0162	0.0166	0.0172	0.0164	0.0151	0.0162	0.0153	0.0150	0.0170	0.0153	0.0150
0.0020	0.0018	0.0017	0.0019	0.0020	0.0020	0.0015	0.0016	0.0018	0.0016	0.0019
0.0013	0.0016	0.0015	0.0014	0.0015	0.0015	0.0013	0.0012	0.0012	0.0013	0.0015

944	943	942	941	940	939	938	937	936	935	934
297	298	299	300	301	301	302	303	303	304	304
0.2800	0.2900	0.3200	0.3350	0.1750	0.1100	0.2400	0.3250	0.3750	0.3650	0.3300
2.3031	2.3961	2.3744	2.4905	2.9314	3.0014	2.3940	2.2255	2.3862	2.3582	2.2547
0.0333	0.0291	0.0306	0.0323	0.0302	0.0320	0.0325	0.0292	0.0256	0.0260	0.0323
0.0416	0.0526	0.0801	0.0710	0.0219	0.0217	0.0405	0.0369	0.0512	0.0508	0.0373
0.0360	0.0357	0.0340	0.0278	0.0271	0.0409	0.0419	0.0321	0.0314	0.0298	0.0279
0.6114	0.4862	0.4742	0.4884	0.5219	0.5367	0.5633	0.5803	0.5186	0.5610	0.5861
0.2463	0.2483	0.2427	0.2518	0.2735	0.2815	0.2510	0.2356	0.2419	0.2383	0.2461
0.0530	0.0361	0.0492	0.0465	0.0323	0.0312	0.0553	0.0626	0.0468	0.0671	0.0656
2.8513	2.7156	3.0334	2.8993	2.2846	2.1726	3.0818	3.3661	3.0747	3.4591	3.2708
0.0075	0.0077	0.0075	0.0078	0.0066	0.0061	0.0072	0.0075	0.0076	0.0077	0.0075
0.0007	0.0004	0.0004	0.0008	0.0007	0.0007	0.0009	0.0008	0.0006	0.0006	0.0008
0.0070	0.0077	0.0081	0.0077	0.0065	0.0061	0.0068	0.0073	0.0077	0.0077	0.0073
0.0055	0.0053	0.0053	0.0052	0.0053	0.0054	0.0055	0.0053	0.0055	0.0056	0.0053
0.0028	0.0027	0.0029	0.0028	0.0028	0.0029	0.0030	0.0029	0.0027	0.0027	0.0027
0.0190	0.0170	0.0139	0.0140	0.0209	0.0254	0.0196	0.0166	0.0165	0.0145	0.0155
0.0018	0.0019	0.0018	0.0016	0.0016	0.0019	0.0020	0.0019	0.0017	0.0019	0.0020
0.0013	0.0015	0.0015	0.0011	0.0009	0.0010	0.0011	0.0011	0.0013	0.0014	0.0011

955	954	953	952	951	950	949	948	947	946	945
273	275	278	280	282	284	286.5	289	290.5	293	296
0.3150	0.1950	0.1900	0.4250	0.4700	0.3750	0.2800	0.2750	0.2400	0.2150	0.2600
2.2070	2.3111	2.1954	2.2214	2.1759	2.2526	2.3849	2.5273	2.2807	2.3059	2.4529
0.0243	0.0292	0.0282	0.0344	0.0344	0.0313	0.0413	0.0411	0.0306	0.0251	0.0297
0.0468	0.0655	0.0772	0.0657	0.0830	0.0799	0.0592	0.0610	0.0358	0.0138	0.0201
0.0266	0.0323	0.0369	0.0331	0.0246	0.0316	0.0398	0.0342	0.0341	0.0352	0.0364
0.4719	0.4651	0.4494	0.4908	0.4873	0.4659	0.4691	0.4838	0.4917	0.5518	0.6685
0.2510	0.2550	0.2462	0.2280	0.2019	0.2180	0.2257	0.2250	0.2348	0.2452	0.2507
0.0346	0.0344	0.0374	0.0445	0.0679	0.0665	0.0492	0.0470	0.0344	0.0344	0.0574
2.8416	2.8310	2.7613	2.7868	3.3605	3.3150	3.0271	2.9273	2.5322	2.3487	2.7153
0.0075	0.0073	0.0072	0.0075	0.0075	0.0072	0.0076	0.0072	0.0068	0.0067	0.0067
0.0008	0.0008	0.0007	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007	0.0006	0.0005
0.0072	0.0073	0.0076	0.0075	0.0076	0.0075	0.0071	0.0068	0.0065	0.0063	0.0063
0.0053	0.0053	0.0052	0.0053	0.0054	0.0053	0.0050	0.0051	0.0053	0.0054	0.0056
0.0026	0.0028	0.0028	0.0027	0.0026	0.0026	0.0027	0.0028	0.0028	0.0027	0.0029
0.0160	0.0159	0.0154	0.0153	0.0126	0.0132	0.0158	0.0177	0.0184	0.0197	0.0210
0.0017	0.0017	0.0017	0.0016	0.0015	0.0016	0.0015	0.0016	0.0018	0.0017	0.0018
0.0013	0.0012	0.0013	0.0014	0.0012	0.0012	0.0013	0.0013	0.0014	0.0014	0.0014

966	965	964	963	962	961	960	959	958	957	956
197	209	221	234	246	258	261	263	266	268	271
0.3150	0.2750	0.2800	0.3050	0.2650	0.1150	0.1750	0.2850	0.2250	0.2950	0.3000
2.7492	2.3052	2.1081	1.9809	1.9606	2.0821	2.1629	2.2156	2.2587	2.1898	2.0153
0.0301	0.0305	0.0258	0.0254	0.0241	0.0204	0.0218	0.0252	0.0260	0.0230	0.0191
0.0299	0.0579	0.0696	0.0696	0.0671	0.0770	0.0774	0.0675	0.0452	0.0472	0.0499
0.0298	0.0282	0.0304	0.0351	0.0350	0.0290	0.0252	0.0244	0.0281	0.0288	0.0254
0.5585	0.5105	0.5308	0.5038	0.5154	0.5336	0.5372	0.5651	0.5449	0.4901	0.4584
0.2575	0.2484	0.2450	0.2623	0.2493	0.2244	0.2262	0.2212	0.2307	0.2421	0.2391
0.0298	0.0423	0.0482	0.0400	0.0394	0.0443	0.0467	0.0501	0.0441	0.0393	0.0371
2.2967	2.9272	3.1207	2.8908	2.7574	2.9608	3.0978	3.1470	2.7271	2.5077	2.7619
0.0068	0.0076	0.0075	0.0074	0.0071	0.0076	0.0082	0.0077	0.0069	0.0074	0.0079
0.0006	0.0007	0.0006	0.0005	0.0006	0.0006	0.0006	0.0007	0.0006	0.0005	0.0006
0.0065	0.0077	0.0073	0.0071	0.0069	0.0070	0.0073	0.0071	0.0066	0.0068	0.0072
0.0057	0.0054	0.0054	0.0054	0.0052	0.0048	0.0049	0.0051	0.0054	0.0056	0.0053
0.0028	0.0029	0.0028	0.0028	0.0027	0.0028	0.0027	0.0027	0.0029	0.0027	0.0025
0.0206	0.0158	0.0152	0.0187	0.0189	0.0155	0.0150	0.0160	0.0196	0.0197	0.0164
0.0016	0.0016	0.0016	0.0018	0.0018	0.0017	0.0017	0.0016	0.0017	0.0018	0.0019
0.0012	0.0013	0.0013	0.0014	0.0013	0.0014	0.0014	0.0011	0.0013	0.0015	0.0014

977	976	975	974	973	972	971	970	969	968	967
67	79	90.5	102	114	126	138	150	162	174	186
0.2400	0.2850	0.1650	0.2050	0.3800	0.3050	0.2900	0.1600	0.1200	0.1200	0.1650
3.5228	3.0443	3.0168	3.0403	2.5789	2.3273	2.4169	4.0840	5.3276	4.8010	3.7580
0.0238	0.0253	0.0238	0.0258	0.0297	0.0297	0.0269	0.0296	0.0239	0.0182	0.0231
0.0065	0.0066	0.0066	0.0083	0.0313	0.0501	0.0380	0.0109	0.0000	0.0000	0.0038
0.0297	0.0340	0.0383	0.0346	0.0327	0.0332	0.0322	0.0355	0.0362	0.0332	0.0312
0.6969	0.6406	0.5799	0.5685	0.5738	0.5219	0.5270	0.5717	0.5169	0.5372	0.6133
0.2739	0.3116	0.2254	0.2366	0.2638	0.2701	0.2834	0.2040	0.0862	0.0847	0.1878
0.0210	0.0279	0.0290	0.0308	0.0381	0.0358	0.0324	0.0218	0.0140	0.0227	0.0261
1.6459	1.8747	1.8060	1.9959	2.4251	2.5640	2.4834	1.5993	0.9124	1.2262	1.6447
0.0043	0.0048	0.0052	0.0054	0.0063	0.0076	0.0074	0.0046	0.0029	0.0033	0.0047
0.0007	0.0003	0.0002	0.0004	0.0006	0.0004	0.0000	0.0000	0.0000	0.0000	0.0003
0.0044	0.0051	0.0046	0.0049	0.0059	0.0069	0.0067	0.0040	0.0025	0.0028	0.0039
0.0062	0.0068	0.0070	0.0061	0.0056	0.0055	0.0054	0.0065	0.0073	0.0071	0.0066
0.0024	0.0027	0.0021	0.0021	0.0027	0.0028	0.0026	0.0019	0.0011	0.0013	0.0021
0.0358	0.0412	0.0271	0.0247	0.0268	0.0205	0.0227	0.0200	0.0084	0.0125	0.0221
0.0016	0.0019	0.0017	0.0015	0.0018	0.0020	0.0020	0.0014	0.0008	0.0012	0.0015
0.0008	0.0011	0.0011	0.0011	0.0011	0.0013	0.0013	0.0009	0.0004	0.0004	0.0009

988	987	986	985	984	983	982	981	980	979	978
28	29	30	32	33	35	37	39	41	44	56
0.2650	0.2850	0.2900	0.3400	0.1800	0.1750	0.3500	0.3550	0.2950	0.3150	0.3200
2.7940	2.5529	2.2258	2.1304	2.2532	2.3050	2.3697	2.3767	2.3013	2.8962	3.6014
0.0289	0.0321	0.0302	0.0231	0.0105	0.0121	0.0239	0.0239	0.0208	0.0200	0.0202
0.0183	0.0152	0.0196	0.0330	0.0217	0.0340	0.0337	0.0216	0.0310	0.0127	0.0065
0.0386	0.0420	0.0408	0.0389	0.0406	0.0408	0.0458	0.0445	0.0356	0.0298	0.0283
0.6648	0.6537	0.6047	0.5952	0.5945	0.5713	0.6038	0.6205	0.5688	0.5815	0.6601
0.2291	0.2481	0.2583	0.2443	0.2243	0.2420	0.2662	0.2710	0.2646	0.2297	0.1850
0.0207	0.0209	0.0225	0.0207	0.0187	0.0238	0.0256	0.0254	0.0279	0.0249	0.0208
1.7266	2.0391	2.2555	1.9619	1.6995	2.1098	2.2084	2.0794	2.1640	1.6389	1.3975
0.0052	0.0061	0.0065	0.0055	0.0052	0.0062	0.0064	0.0062	0.0063	0.0050	0.0041
0.0000	0.0002	0.0005	0.0006	0.0003	0.0000	0.0000	0.0002	0.0002	0.0000	0.0004
0.0044	0.0053	0.0060	0.0054	0.0045	0.0053	0.0057	0.0055	0.0059	0.0048	0.0037
0.0053	0.0055	0.0056	0.0051	0.0049	0.0051	0.0053	0.0056	0.0056	0.0053	0.0057
0.0023	0.0025	0.0026	0.0026	0.0023	0.0025	0.0028	0.0029	0.0028	0.0025	0.0021
0.0256	0.0253	0.0240	0.0250	0.0253	0.0256	0.0287	0.0306	0.0294	0.0292	0.0264
0.0015	0.0016	0.0016	0.0016	0.0015	0.0015	0.0018	0.0019	0.0016	0.0014	0.0013
0.0011	0.0011	0.0012	0.0010	0.0009	0.0013	0.0014	0.0012	0.0012	0.0011	0.0009

993	992	991	990	989
23	24	25	26	26.5
	0.1100	0.3350	0.4250	0.3100
	3.3395	2.5746	2.5175	2.7339
	0.0296	0.0295	0.0317	0.0305
	0.0105	0.0309	0.0271	0.0144
	0.0348	0.0335	0.0422	0.0433
	0.6489	0.6360	0.6467	0.6559
	0.2483	0.2551	0.2453	0.2306
	0.0192	0.0213	0.0238	0.0237
	1.5282	1.8424	2.1565	2.0210
	0.0045	0.0054	0.0065	0.0061
	0.0000	0.0000	0.0003	0.0003
	0.0039	0.0049	0.0059	0.0052
	0.0055	0.0054	0.0056	0.0054
	0.0020	0.0024	0.0027	0.0025
	0.0279	0.0261	0.0249	0.0243
	0.0013	0.0015	0.0017	0.0016
	0.0010	0.0010	0.0012	0.0012

Appendix B (Lab data)

Depth	Age	Dry BD /cc	%TOM	Residual	Mag Sup
1	2017	0.6865	7.97	89.55	17.10
2	2017	0.5835	7.74	89.79	16.30
3	2016	0.547	7.71	89.87	19.90
4	2015	0.577	7.88	89.81	19.60
5	2015	0.5775	7.95	89.71	19.90
6	2014	0.5485	7.89	89.58	23.40
7	2013	0.5315	7.89	89.53	32.30
8	2012	0.5265	7.94	89.55	24.70
9	2012	0.57175	7.83	89.77	30.80
10	2011	0.66725	7.55	90.19	31.60
11	2010	0.65425	7.60	89.99	32.30
12	2010	0.53275	7.99	89.19	31.40
13	2009	0.52025	8.02	89.15	32.00
14	2008	0.61675	7.70	89.87	31.60
15	2008	0.65	7.50	90.29	33.70
16	2007	0.62	7.41	90.40	33.50
17	2006	0.6415	7.32	90.49	34.30
18	2005	0.7145	7.21	90.55	36.30
19	2005	0.7455	7.30	90.51	36.80
20	2004	0.7345	7.57	90.35	36.50
21	2003	0.72575	7.71	90.22	36.60
22	2003	0.71925	7.71	90.13	36.20
23	2002	0.7175	7.89	89.94	39.80
24	2001	0.7205	8.25	89.65	34.10
25	2000	0.89075	8.33	89.58	35.80
26	2000	1.22825	8.13	89.73	35.60
27	1999	1.2365	8.04	89.80	38.70
28	1998	0.9155	8.07	89.79	39.00
29	1998	0.749	8.12	89.77	36.10
30	1997	0.737	8.19	89.74	38.00
31	1996	0.72975	8.01	90.04	39.00
32	1995	0.72725	7.60	90.66	38.60
33	1995	0.7055	7.56	90.66	28.20
34	1994	0.6645	7.90	90.03	37.80
35	1993	0.6675	8.08	89.65	41.00
36	1993	0.7145	8.09	89.51	41.30
37	1992	0.75	7.97	89.55	43.50

38	1991	0.774	7.73	89.78	46.50
39	1991	0.78075	7.73	89.80	46.30
40	1990	0.77025	7.98	89.61	49.10
41	1989	0.76375	8.08	89.53	49.90
42	1988	0.76125	8.05	89.57	48.50
43	1988	0.73725	8.11	89.49	50.20
44	1987	0.69175	8.26	89.30	53.00
45	1986	0.648	8.56	88.90	53.60
46	1986	0.606	9.03	88.32	53.40
47	1985	0.61	9.19	88.16	56.60
48	1984	0.66	9.06	88.43	57.70
49	1983	0.636	8.97	88.52	62.00
50	1983	0.538	8.91	88.42	58.90
51	1982	0.55	8.73	88.58	55.40
52	1981	0.672	8.43	88.98	54.30
53	1981	0.70725	8.37	89.07	53.30
54	1980	0.65575	8.53	88.85	49.70
55	1979	0.72325	8.75	88.72	48.50
56	1978	0.90975	9.03	88.67	51.90
57	1978	0.92575	8.91	88.86	51.80
58	1977	0.77125	8.38	89.28	52.50
59	1976	0.675	8.26	89.40	51.80
60	1976	0.637	8.58	89.22	50.70
61	1975	0.64025	8.81	89.02	49.30
62	1974	0.68475	8.95	88.79	45.90
63	1974	0.714	9.09	88.65	46.90
64	1973	0.728	9.20	88.59	47.60
65	1973	0.74875	9.32	88.73	48.90
66	1973	0.77625	9.42	89.09	52.10
67	1972	0.767	9.44	89.04	52.20
68	1972	0.721	9.39	88.59	53.00
69	1972	0.7145	9.28	88.53	53.60
70	1971	0.7475	9.11	88.86	57.10
71	1971	0.73175	9.15	88.85	54.20
72	1971	0.66725	9.39	88.48	53.70
73	1970	0.6635	9.30	88.59	55.10
74	1970	0.7205	8.86	89.18	54.00
75	1970	0.7375	8.71	89.42	52.90
76	1970	0.7145	8.86	89.30	52.40

77	1969	0.73125	8.96	89.24	52.70
78	1969	0.78775	9.01	89.24	52.20
79	1969	0.7325	9.16	89.06	50.80
80	1968	0.5655	9.42	88.71	52.30
81	1968	0.4895	9.41	88.71	52.30
82	1968	0.5045	9.11	89.07	54.80
83	1967	0.4665	9.50	88.42	56.40
84	1967	0.3755	10.57	86.77	59.70
85	1967	0.38975	10.62	86.59	61.90
86	1966	0.50925	9.64	87.88	60.30
87	1966	0.58875	9.20	88.45	59.30
88	1966	0.62825	9.32	88.31	60.30
89	1965	0.66625	9.30	88.50	55.90
90	1965	0.70275	9.15	89.02	56.90
91	1965	0.7195	8.97	89.24	57.50
92	1964	0.7165	8.76	89.15	61.00
93	1964	0.71	8.86	89.00	62.20
94	1964	0.7	9.26	88.79	62.40
95	1963	0.67075	9.27	88.72	62.20
96	1963	0.62225	8.89	88.80	60.00
97	1963	0.608	9.54	87.97	52.80
98	1962	0.628	11.22	86.26	51.90
99	1962	0.67375	11.30	86.23	48.30
100	1962	0.74525	9.76	87.89	52.05
101	1961	0.79425	8.98	88.74	55.80
102	1961	0.82075	8.94	88.77	54.80
103	1961	0.8335	10.24	87.39	57.00
104	1961	0.8325	12.87	84.61	55.40
105	1960	0.78475	12.63	84.84	55.10
106	1960	0.69025	9.52	88.10	56.20
107	1960	0.65375	7.86	89.81	56.90
108	1959	0.67525	7.64	89.97	53.60
109	1959	0.673	8.02	89.54	55.00
110	1959	0.647	9.01	88.52	57.90
111	1958	0.6385	9.31	88.15	57.10
112	1958	0.6475	8.93	88.43	60.00
113	1958	0.65	9.24	88.01	60.30
114	1957	0.646	10.23	86.88	59.10
115	1957	0.65875	10.53	86.59	54.00

116	1957	0.68825	10.16	87.13	49.00
117	1956	0.66575	9.92	87.34	58.90
118	1956	0.59125	9.80	87.24	56.40
119	1954	0.59725	10.08	86.87	54.80
120	1951	0.68375	10.76	86.24	54.40
121	1949	0.692	11.12	85.77	53.20
122	1947	0.622	11.18	85.45	53.30
123	1945	0.5915	11.30	85.19	51.70
124	1943	0.6005	11.48	84.99	64.20
125	1941	0.537	13.16	83.23	54.20
126	1938	0.401	16.32	79.92	51.90
127	1936	0.35625	16.14	80.26	51.20
128	1934	0.40275	12.60	84.25	83.90
129	1932	0.42575	10.89	86.26	64.20
130	1929	0.42525	11.01	86.27	53.20
131	1925	0.45375	11.08	86.25	50.50
132	1921	0.51125	11.11	86.20	47.00
133	1917	0.57175	10.98	86.34	44.20
134	1913	0.63525	10.69	86.68	39.40
135	1909	0.6265	10.29	87.18	33.90
136	1905	0.5455	9.77	87.83	42.20
137	1901	0.468	10.35	87.30	40.50
138	1897	0.394	12.03	85.58	41.70
139	1893	0.3685	12.46	85.02	45.90
140	1889	0.3915	11.63	85.62	46.70
141	1885	0.476	11.01	86.11	46.60
142	1884	0.622	10.59	86.49	46.60
143	1882	0.706	10.53	86.67	46.20
144	1881	0.728	10.84	86.66	46.40
145	1880	0.72475	11.05	86.46	47.40
146	1879	0.69625	11.17	86.09	45.60
147	1878	0.62575	11.17	86.02	43.80
148	1878	0.51325	11.07	86.27	49.20
149	1877	0.49375	10.82	86.63	45.90
150	1876	0.56725	10.42	87.10	45.40
151	1875	0.60525	10.13	87.33	45.50
152	1874	0.60775	9.93	87.33	45.10
153	1874	0.6085	9.84	87.43	43.30
154	1873	0.6075	9.86	87.63	39.60

155	1873	0.60025	10.00	87.59	42.20
156	1872	0.58675	10.26	87.30	40.70
157	1871	0.58775	10.37	87.19	39.50
158	1871	0.60325	10.32	87.28	42.90
159	1870	0.60575	10.39	87.21	46.20
160	1870	0.59525	10.57	86.99	44.20
161	1869	0.59275	10.43	86.88	46.40
162	1869	0.59825	9.97	86.86	48.30
163	1868	0.5575	9.75	87.07	47.70
164	1868	0.4705	9.76	87.51	45.20
165	1867	0.49825	9.85	87.62	47.20
166	1866	0.64075	10.01	87.42	50.50
167	1866	0.631	10.10	87.28	54.60
168	1865	0.469	10.10	87.22	53.40
169	1865	0.45825	9.90	87.27	55.00
170	1864	0.59875	9.49	87.44	52.60
171	1864	0.6245	9.18	87.59	52.60
172	1864	0.5355	8.95	87.74	51.50
173	1863.5	0.54475	8.64	88.09	52.10
174	1863	0.65225	8.24	88.64	54.00
175	1863	0.65375	8.32	88.61	44.00
176	1862	0.54925	8.91	87.98	36.80
177	1861	0.46975	9.20	87.82	35.20
178	1861	0.41525	9.22	88.13	34.40
179	1860	0.486	9.33	88.19	37.10
180	1860	0.682	9.55	88.00	36.80
181	1859	0.72225	9.59	87.96	39.50
182	1859	0.60675	9.46	88.07	36.50
183	1858	0.5795	9.04	88.55	30.03
184	1858	0.6405	8.31	89.41	31.28
185	1857	0.6795	8.48	89.27	34.40
186	1857	0.6965	9.53	88.14	35.90
187	1856.5	0.60375	9.94	87.57	37.20
188	1856	0.40125	9.69	87.58	41.00
189	1855	0.36075	9.53	87.76	47.00
190	1855	0.48225	9.43	88.10	52.50
191	1854	0.634	9.59	88.05	58.60
192	1854	0.816	10.00	87.62	56.20
193	1854	0.79675	10.18	87.42	42.60

194	1853	0.57625	10.11	87.44	32.70
195	1852	0.51625	9.87	87.51	40.90
196	1852	0.61675	9.44	87.64	52.60
197	1852	0.6875	9.35	87.72	41.90
198	1851	0.7285	9.60	87.76	40.10
199	1850	0.86925	9.86	87.65	38.80
200	1850	1.10975	10.13	87.40	38.20
201	1849	1.146	10.13	87.40	39.80
202	1849	0.978	9.85	87.67	48.50
203	1848	0.857	9.65	87.83	54.60
204	1848	0.783	9.51	87.91	45.90
205	1847	0.75825	9.29	88.15	49.30
206	1847	0.78275	9.01	88.56	45.40
207	1847	0.79275	8.93	88.66	49.40
208	1846	0.78825	9.08	88.45	50.35
209	1845.5	0.81275	9.17	88.29	55.30
210	1845	0.86625	9.23	88.17	50.70
211	1844.5	0.88675	9.51	87.81	51.10
212	1844	0.87425	10.02	87.22	48.90
213	1843	0.86325	9.85	87.37	50.70
214	1843	0.85375	8.98	88.24	56.50
215	1842	0.82175	8.85	88.31	49.80
216	1842	0.76725	9.47	87.56	46.60
217	1841	0.75675	9.89	87.13	44.90
218	1841	0.79025	10.13	87.02	48.80
219	1840	0.7785	10.26	86.99	54.00
220	1840	0.7215	10.26	87.04	50.50
221	1839	0.73775	10.17	87.08	44.60
222	1838	0.82725	9.99	87.12	45.40
223	1838	0.846	9.90	87.19	43.30
224	1837	0.794	9.90	87.27	41.20
225	1837	0.78125	9.74	87.56	40.00
226	1836	0.80775	9.43	88.06	41.30
227	1836	0.813	9.38	88.22	40.80
228	1836	0.797	9.60	88.03	39.40
229	1835	0.78675	9.49	88.08	48.50
230	1835	0.78225	9.06	88.36	46.20
231	1834	0.776	9.11	88.37	50.70
232	1834	0.768	9.64	88.13	45.60

233	1833	0.72425	9.87	88.04	40.70
234	1833	0.64475	9.80	88.12	36.60
235	1832	0.64475	9.97	87.77	42.30
236	1832	0.72425	10.39	86.98	40.30
237	1831	0.78925	10.44	86.72	35.80
238	1830	0.83975	10.12	86.99	29.80
239	1830	0.83575	10.15	86.98	34.90
240	1829	0.77725	10.51	86.68	38.20
241	1829	0.74125	10.66	86.55	37.70
242	1828	0.72775	10.59	86.59	37.50
243	1828	0.73575	10.13	87.21	40.00
244	1827	0.76525	9.27	88.43	38.20
245	1826	0.74375	9.22	88.40	38.00
246	1826	0.67125	9.98	87.12	39.40
247	1825	0.602	10.36	86.49	41.40
248	1825	0.536	10.36	86.51	43.10
249	1824	0.564	10.27	86.72	40.60
250	1824	0.686	10.09	87.13	46.40
251	1823	0.751	9.93	87.35	42.30
252	1823	0.759	9.79	87.38	43.70
253	1822	0.77575	9.68	87.56	49.20
254	1822	0.80125	9.61	87.88	42.70
255	1821	0.85875	9.47	88.13	41.60
256	1821	0.94825	9.29	88.32	41.70
257	1820	0.9355	9.18	88.38	41.40
258	1820	0.8205	9.14	88.33	42.40
259	1819	0.76225	9.12	88.27	45.60
260	1819	0.76075	9.13	88.21	46.60
261	1818	0.7355	9.15	88.15	45.50
262	1818	0.6865	9.21	88.09	46.10
263	1817	0.722	9.15	88.20	46.40
264	1817	0.842	8.99	88.47	31.00
265	1816	0.8805	8.96	88.58	33.40
266	1815	0.8375	9.05	88.55	33.20
267	1815	0.85675	9.07	88.58	34.10
268	1814	0.93825	9.01	88.66	39.00
269	1814	0.94725	8.97	88.59	46.40
270	1813	0.88375	8.93	88.36	51.30
271	1813	0.79225	9.15	87.94	30.50

272	1812	0.67275	9.61	87.33	34.70
273	1812	0.6585	9.73	87.15	42.40
274	1811	0.7495	9.52	87.40	24.90
275	1810	0.81175	9.55	87.45	34.50
276	1810	0.84525	9.83	87.29	28.90
277	1809	0.93325	9.76	87.63	29.40
278	1808.5	1.07575	9.33	88.46	31.40
279	1808	1.1035	9.76	88.17	28.40
280	1807	1.0165	11.03	86.77	26.70
281	1806	0.9395	11.19	86.55	25.70
282	1805	0.8725	10.26	87.51	22.20
283	1800	0.886	9.52	88.22	16.90
284	1795	0.98	8.98	88.69	14.90
285	1790	1.0275	8.84	88.85	18.30
286	1786	1.0285	9.09	88.70	22.80
287	1783	0.9415	9.95	87.84	21.40
288	1781	0.7665	11.42	86.27	21.90
289	1779.5	0.7035	12.01	85.70	19.80
290	1778	0.7525	11.71	86.11	16.10
291	1776	0.7175	12.33	85.53	12.10
292	1774	0.5985	13.86	83.94	18.90
293	1772	0.567	14.18	83.56	17.00
294	1770	0.623	13.27	84.38	9.00
295	1769	0.69475	13.00	84.66	8.90
296	1767	0.78225	13.37	84.39	8.80
297	1765	0.78975	14.83	83.00	12.60
298	1761	0.71725	17.40	80.48	7.90
299	1758	0.69675	17.72	80.16	6.00
300	1754	0.72825	15.79	82.05	4.60
301	1751	0.68	15.64	82.12	5.60
302	1748	0.552	17.29	80.39	7.30
303	1745	0.51225	17.79	79.86	8.90
304	1741	0.56075	17.15	80.53	8.40
305	1738	0.57375	16.99	80.63	9.60
306	1734	0.55125	17.30	80.16	11.20
307	1733	0.49625	18.80	78.57	24.10
308	1731	0.40875	21.49	75.86	45.10
309	1730	0.387	22.06	75.37	13.40
310	1729	0.431	20.49	77.12	11.20

311	1727	0.43725	20.84	76.89	11.50
312	1726	0.40575	23.12	74.71	2.80
313	1725	0.42225	22.76	75.01	6.90
314	1724	0.48675	19.77	77.80	5.40
315	1723	0.5965	15.94	81.66	4.00
316	1721	0.7515	11.27	86.62	5.00
317	1720	0.81675	9.31	88.81	8.00
318	1719	0.79225	10.07	88.23	6.70
319	1718	0.714	11.43	86.96	7.10
320	1716	0.582	13.37	84.99	7.80
321	1715	0.4925	15.09	83.17	9.10
322	1714	0.4455	16.61	81.50	7.30
323	1713	0.435	17.57	80.41	8.60
324	1711	0.461	17.98	79.90	9.00
325	1710	0.47875	18.11	79.88	7.40
326	1709	0.48825	17.96	80.36	7.40
327	1708	0.508	17.22	81.23	7.70
328	1706	0.538	15.86	82.48	4.40
329	1705	0.53575	15.65	82.58	4.30
330	1704	0.50125	16.57	81.54	4.20
331	1703	0.5355	15.40	82.68	4.90
332	1701	0.6385	12.16	86.00	5.00
333	1700	0.66225	11.92	86.28	7.40
334	1699	0.60675	14.67	83.54	8.60
335	1698	0.567	16.34	81.80	9.70
336	1696	0.543	16.93	81.04	7.30
337	1695	0.53725	16.34	81.65	8.00
338	1694	0.54975	14.58	83.61	10.40
339	1693	0.59875	12.82	85.43	7.30
340	1691	0.68425	11.07	87.11	2.70
341	1690	0.74825	9.76	88.37	4.10
342	1689	0.79075	8.89	89.22	4.00
343	1688	0.769	9.20	88.96	4.90
344	1686	0.683	10.71	87.59	6.20
345	1685	0.66775	12.11	86.15	6.40
346	1684	0.72325	13.43	84.63	6.60
347	1683	0.72825	13.55	84.44	3.60
348	1681	0.68275	12.47	85.60	4.50
349	1680	0.6445	12.76	85.39	4.80

350	1679	0.6135	14.40	83.83	7.90
351	1677	0.6235	13.82	84.30	5.60
352	1676	0.6745	11.02	86.80	5.40
353	1674	0.638	11.55	86.28	5.20
354	1670	0.514	15.43	82.73	5.40
355	1667	0.51075	16.61	81.61	5.00
356	1664	0.62825	15.10	82.91	5.10
357	1661	0.6675	14.11	83.85	5.50
358	1659	0.6285	13.64	84.42	5.40
359	1656	0.639	12.81	85.27	4.90
360	1653	0.699	11.63	86.42	4.60
361	1650	0.697	11.49	86.47	4.20
362	1646	0.633	12.40	85.44	4.90
363	1643	0.62175	12.67	85.14	3.40
364	1640	0.66325	12.29	85.58	2.80
365	1637	0.6445	12.82	85.15	3.20
366	1634	0.5655	14.26	83.86	3.00
367	1631	0.52125	15.19	82.94	1.30
368	1628	0.51175	15.62	82.40	0.90
369	1625	0.51275	15.93	82.04	0.90
370	1622	0.52425	16.12	81.88	0.90
371	1619	0.52775	16.10	81.86	1.20
372	1615	0.52325	15.87	81.99	1.10
373	1612	0.51175	16.13	81.73	0.70
374	1609	0.49325	16.88	81.10	0.90
375	1606	0.4755	17.33	80.53	0.70
376	1603	0.4585	17.47	80.01	0.90
377	1600	0.471	16.96	80.47	0.90
378	1597	0.513	15.82	81.91	1.30
379	1594	0.5305	15.46	82.35	1.10
380	1591	0.5235	15.88	81.81	1.70
381	1588	0.53425	15.91	81.74	1.70
382	1585	0.56275	15.54	82.15	2.10
383	1582	0.56525	15.50	82.21	2.70
384	1579	0.54175	15.79	81.92	1.70
385	1576	0.52775	16.02	81.67	1.70
386	1573	0.52325	16.21	81.46	2.40
387	1570	0.53325	15.38	81.72	1.70
388	1567	0.55775	13.51	82.43	2.40

389	1564	0.5675	13.12	82.81	2.10
390	1561	0.5625	14.21	82.86	1.90
391	1558	0.5835	14.41	83.34	2.40
392	1555	0.6305	13.73	84.26	2.10
393	1552	0.6445	13.44	84.63	2.50
394	1549	0.6255	13.55	84.47	2.70
395	1546	0.615	13.76	84.23	1.60
396	1543	0.613	14.06	83.91	1.50
397	1540	0.602	14.62	83.40	1.90
398	1537	0.582	15.43	82.69	2.30
399	1534	0.57725	15.59	82.48	2.30
400	1531	0.58775	15.10	82.76	2.80
401	1528	0.59625	14.85	83.00	2.70
402	1525	0.60275	14.85	83.19	3.10
403	1522	0.6085	14.84	83.26	1.80
404	1519	0.6135	14.82	83.20	2.20
405	1515.5	0.61475	15.01	83.02	2.10
406	1512.5	0.61225	15.39	82.72	1.30
407	1509	0.5925	16.66	81.42	3.40
408	1506	0.5555	18.82	79.15	7.30
409	1503	0.55475	19.15	78.73	
410	1500	0.59025	17.65	80.18	6.30
411	1497	0.617	16.40	81.44	0.20
412	1494	0.635	15.41	82.51	5.10
413	1491	0.639	15.05	82.89	5.80
414	1488	0.629	15.32	82.58	4.80
415	1485	0.608	16.22	81.77	3.20
416	1482	0.576	17.75	80.45	3.20
417	1479	0.5685	18.27	80.03	3.20
418	1476	0.5855	17.77	80.48	4.40
419	1473	0.59275	17.74	80.54	5.90
420	1470	0.59025	18.16	80.20	6.20
421	1467	0.54375	18.55	79.74	5.40
422	1464	0.45325	18.91	79.16	6.00
423	1461	0.433	18.81	79.24	6.40
424	1458	0.483	18.26	79.99	6.50
425	1455	0.4955	18.15	80.25	6.60
426	1452	0.4705	18.49	80.03	6.80
427	1449	0.45825	18.73	79.80	6.80

428	1445	0.45875	18.87	79.55	6.00
429	1442	0.48225	19.08	79.23	3.20
430	1439	0.52875	19.35	78.84	5.90
431	1437	0.5325	19.58	78.68	5.00
432	1434	0.4935	19.76	78.75	6.50
433	1432	0.4875	19.79	78.82	5.80
434	1429	0.5145	19.70	78.90	5.60
435	1427	0.5175	19.72	78.73	6.20
436	1424.5	0.4965	19.88	78.31	6.00
437	1422	0.504	20.13	78.04	5.80
438	1420	0.54	20.47	77.91	5.80
439	1417	0.552	20.79	77.77	6.40
440	1415	0.54	21.10	77.61	5.70
441	1412	0.50025	21.85	76.84	2.60
442	1410	0.43275	23.03	75.46	
443	1408	0.41275	22.97	75.36	
444	1405	0.44025	21.67	76.55	
445	1403	0.46925	20.86	77.32	
446	1400	0.49975	20.53	77.66	
447	1398	0.50675	20.34	77.92	
448	1396	0.49025	20.29	78.10	
449	1393	0.535	18.67	79.73	
450	1391	0.641	15.48	82.81	0.30
451	1389	0.634	14.21	84.00	0.70
452	1386	0.514	14.89	83.28	1.70
453	1384	0.5055	15.53	82.58	2.30
454	1381	0.6085	16.13	81.91	3.30
455	1379	0.61925	16.72	81.17	4.30
456	1376	0.53775	17.31	80.36	4.60
457	1374	0.492	17.96	79.73	4.80
458	1371	0.482	18.67	79.26	4.30
459	1369	0.50325	18.81	79.29	4.00
460	1366	0.55575	18.38	79.81	3.70
461	1363	0.569	18.09	80.05	2.80
462	1360	0.543	17.95	80.02	3.10
463	1357	0.50125	18.05	79.85	3.60
464	1355	0.44375	18.40	79.56	3.60
465	1353	0.459	17.62	80.43	3.20
466	1351	0.547	15.72	82.45	2.50

467	1349	0.58875	14.52	83.71	3.40
468	1346	0.58425	14.02	84.20	3.00
469	1344	0.5745	14.44	83.63	3.20
470	1342	0.5595	15.77	82.00	4.60
471	1340	0.56525	16.30	81.38	4.20
472	1338	0.59175	16.01	81.77	4.60
473	1335.5	0.589	16.19	81.83	5.10
474	1333	0.557	16.83	81.58	5.60
475	1331	0.538	17.63	80.76	5.40
476	1329	0.532	18.58	79.36	5.10
477	1326	0.53125	18.73	78.94	6.70
478	1324	0.53575	18.10	79.51	5.80
479	1322.5	0.5405	17.28	80.31	5.10
480	1320	0.5455	16.26	81.34	5.60
481	1319	0.53575	15.69	81.95	6.00
482	1316	0.51125	15.57	82.14	6.40
483	1314	0.52925	15.39	82.40	7.30
484	1312	0.58975	15.15	82.70	8.30
485	1310	0.59	14.97	82.87	8.50
486	1309	0.53	14.87	82.91	6.00
487	1307	0.527	14.72	83.01	6.00
488	1305	0.581	14.52	83.17	5.50
489	1303	0.589	15.16	82.43	6.90
490	1301	0.551	16.64	80.79	6.50
491	1299	0.52975	17.82	79.50	6.90
492	1296.5	0.52525	18.72	78.58	6.70
493	1295	0.53025	18.59	78.87	4.50
494	1293	0.54475	17.42	80.37	4.80
495	1291	0.53775	17.26	80.55	5.10
496	1289	0.50925	18.10	79.40	12.10
497	1287	0.51275	17.31	80.17	6.50
498	1286	0.54825	14.86	82.85	5.00
499	1284	0.55	14.40	83.37	5.20
500	1282	0.518	15.91	81.72	5.60
501	1280	0.5165	16.63	81.00	6.30
502	1278	0.5455	16.56	81.20	5.90
503	1276	0.5895	15.89	81.92	5.50
504	1274	0.6485	14.62	83.16	6.00
505	1272	0.68875	13.32	84.50	5.70

506	1271	0.71025	11.99	85.96	5.70
507	1269	0.682	12.23	85.76	6.40
508	1267	0.604	14.07	83.92	13.00
509	1265	0.5645	14.99	82.95	18.20
510	1264	0.5635	15.00	82.85	18.60
511	1262	0.58175	14.38	83.42	11.20
512	1260	0.61925	13.11	84.67	9.70
513	1259	0.60225	13.38	84.38	9.40
514	1257	0.53075	15.17	82.57	8.80
515	1255.5	0.48975	16.05	81.71	8.70
516	1254	0.47925	16.00	81.81	7.30
517	1252	0.46275	16.11	81.83	9.90
518	1250.5	0.44025	16.39	81.77	10.60
519	1248	0.4655	16.32	81.80	10.10
520	1247	0.5385	15.91	81.92	10.00
521	1245	0.5495	15.09	82.63	10.80
522	1243	0.4985	13.86	83.93	10.10
523	1241	0.49625	13.91	83.90	9.20
524	1239	0.54275	15.26	82.54	9.60
525	1237	0.56525	15.68	82.04	9.10
526	1235	0.56375	15.16	82.40	10.30
527	1232.5	0.55575	14.75	82.83	9.10
528	1228	0.54125	14.44	83.34	9.80
529	1212	0.53475	14.48	83.40	13.10
530	1197	0.53625	14.86	83.00	12.90
531	1183	0.55325	14.70	83.05	12.50
532	1168	0.58575	14.01	83.57	10.70
533	1152	0.603	13.71	83.82	5.00
534	1138	0.605	13.81	83.81	10.80
535	1123	0.63	13.74	83.93	10.90
536	1108	0.678	13.50	84.19	10.70
537	1093	0.6965	12.70	84.95	9.50
538	1077	0.6855	11.34	86.19	8.90
539	1062	0.69175	10.90	86.72	8.10
540	1047	0.71525	11.37	86.51	9.30
541	1033	0.73525	11.21	86.77	9.30
542	1017	0.75175	10.40	87.49	11.60
543	1002	0.72725	9.96	87.86	12.20
544	987	0.66175	9.89	87.87	14.10

545	972	0.65	9.92	87.68	9.40
546	957	0.692	10.05	87.28	9.50
547	942	0.7305	10.07	87.19	11.50
548	927	0.7655	9.97	87.41	11.70
549	912	0.80125	9.74	87.77	10.00
550	897	0.83775	9.39	88.28	10.50
551	882	0.87975	9.60	88.09	7.30
552	867	0.92725	10.36	87.18	4.40
553	852	0.95325	10.33	87.09	10.10
554	837	0.95775	9.52	87.82	10.80
555	822	0.941	8.95	88.37	16.30
556	807	0.903	8.62	88.72	14.50
557	792	0.8785	8.58	88.71	11.80
558	777	0.8675	8.82	88.34	11.50
559	762	0.822	9.12	87.98	11.80
560	747	0.742	9.49	87.64	12.60
561	732	0.731	9.63	87.58	10.70
562	717	0.789	9.54	87.81	10.30
563	702	0.8255	9.78	87.58	9.60
564	687	0.8405	10.34	86.90	8.90
565	672	0.8595	10.16	87.02	8.90
566	657	0.8825	9.23	87.95	7.90
567	643	0.84525	8.93	88.25	4.20
568	628	0.74775	9.25	87.90	3.90
569	624	0.73875	9.43	87.58	7.70
570	622	0.81825	9.47	87.30	7.40
571	621	0.851	9.56	87.10	6.60
572	619	0.837	9.70	86.96	7.00
573	617	0.8025	9.91	86.83	7.40
574	615	0.7475	10.18	86.70	9.60
575	614	0.69625	10.33	86.52	10.80
576	612	0.64875	10.34	86.27	9.00
577	610	0.6525	10.42	86.30	10.10
578	609	0.7075	10.57	86.60	8.60
579	607	0.7665	10.55	86.78	7.70
580	606	0.8295	10.35	86.83	7.60
581	604	0.84875	10.23	86.92	7.30
582	603	0.82425	10.19	87.05	7.10
583	601	0.85725	10.09	87.26	7.50

584	600	0.94775	9.95	87.54	8.40
585	598	0.9625	9.78	87.73	9.80
586	597	0.9015	9.58	87.82	8.30
587	595	0.8315	9.42	87.92	7.90
588	594	0.7525	9.29	88.01	8.10
589	592	0.75675	9.49	87.26	7.50
590	590	0.84425	10.02	85.65	7.30
591	589	0.87625	10.23	85.09	7.70
592	587	0.85275	10.11	85.58	7.50
593	585	0.83175	10.08	85.85	10.10
594	583	0.81325	10.13	85.88	8.60
595	582	0.8425	9.92	86.42	10.30
596	581	0.9195	9.44	87.45	9.10
597	580	0.9635	9.26	87.88	7.80
598	579	0.9745	9.37	87.71	8.80
599	578	0.934	9.46	87.61	8.90
600	578	0.842	9.50	87.59	8.00
601	577	0.84525	9.40	87.77	8.80
602	576	0.94375	9.15	88.16	9.70
603	576	0.98075	8.83	88.54	11.20
604	575	0.95625	8.45	88.90	10.10
605	574	0.9015	8.65	88.71	11.20
606	573	0.8165	9.43	87.95	10.70
607	573	0.77975	9.70	87.74	11.10
608	572	0.79125	9.48	88.07	13.40
609	571	0.80125	9.46	88.16	14.00
610	570	0.80975	9.64	88.00	16.80
611	569	0.80625	9.80	87.86	15.90
612	569	0.79075	9.95	87.72	15.50
613	568	0.743	10.16	87.48	16.50
614	567	0.663	10.44	87.14	17.30
615	566	0.63025	10.56	87.09	10.10
616	565	0.64475	10.51	87.35	9.10
617	564.5	0.702	10.10	87.83	11.70
618	564	0.802	9.34	88.54	10.10
619	563	0.881	9.03	88.72	9.60
620	562	0.939	9.18	88.39	10.00
621	560	0.90925	9.32	88.16	11.40
622	559	0.79175	9.46	88.03	11.10

623	559	0.7655	9.68	87.85	12.70
624	558	0.8305	10.00	87.64	11.20
625	557	0.86725	10.09	87.60	10.40
626	557	0.87575	9.97	87.74	10.50
627	556	0.885	9.64	88.01	11.00
628	555	0.895	9.10	88.41	11.00
629	555	0.90075	8.86	88.74	11.90
630	554	0.90225	8.90	89.02	12.30
631	554	0.9275	8.86	89.15	12.50
632	553	0.9765	8.73	89.13	11.80
633	552	0.95525	9.85	87.64	12.00
634	552	0.86375	12.20	84.69	12.40
635	551	0.87325	13.22	83.44	10.90
636	551	0.98375	12.89	83.88	11.40
637	550	1.011	11.65	85.39	22.50
638	550	0.955	9.48	87.94	36.20
639	549	0.95	8.47	89.22	17.30
640	548	0.996	8.63	89.22	11.70
641	548	0.98575	8.99	88.82	10.70
642	547	0.91925	9.56	88.03	10.70
643	547	0.9135	9.59	87.94	8.30
644	546	0.9685	9.07	88.56	11.30
645	546	0.98225	9.14	88.53	12.10
646	545	0.95475	9.80	87.85	14.30
647	545	0.9665	9.82	87.84	15.50
648	544	1.0175	9.19	88.49	13.20
649	543.5	1.02825	8.96	88.81	10.60
650	543	0.99875	9.14	88.81	8.40
651	542	0.98125	9.48	88.50	10.50
652	542	0.97575	9.96	87.91	10.30
653	541	0.8995	10.68	87.12	12.10
654	541	0.7525	11.62	86.14	11.80
655	540	0.73875	11.57	86.25	10.80
656	539	0.85825	10.51	87.43	10.30
657	539	0.91725	9.90	88.08	11.20
658	538	0.91575	9.74	88.18	11.40
659	537	0.92275	9.71	88.16	10.80
660	536	0.93825	9.79	88.01	11.60
661	536	0.91475	10.23	87.37	6.70

662	534	0.85225	11.01	86.26	10.20
663	533	0.84475	11.13	85.80	9.90
664	532	0.89225	10.59	85.99	10.30
665	532	0.91675	9.96	86.80	11.50
666	531	0.91825	9.23	88.22	11.80
667	530	0.91775	8.88	88.85	12.90
668	529	0.91525	8.93	88.70	8.40
669	528	0.89925	9.01	88.47	8.70
670	527	0.86975	9.15	88.14	8.40
671	526	0.78825	9.41	87.79	9.40
672	526	0.65475	9.82	87.42	9.90
673	525	0.65975	10.18	87.08	11.00
674	524	0.80325	10.50	86.75	10.80
675	523	0.856	10.71	86.60	11.80
676	522	0.818	10.82	86.61	11.40
677	521	0.8245	11.10	86.35	10.90
678	521	0.8755	11.57	85.82	8.70
679	520	0.9005	11.51	85.88	7.70
680	519	0.8995	10.93	86.53	8.50
681	518	0.90875	10.46	87.06	11.80
682	517	0.92825	10.09	87.45	9.20
683	516	0.91625	9.92	87.51	8.50
684	516	0.87275	9.93	87.25	7.40
685	515	0.885	9.92	87.12	8.70
686	514	0.953	9.88	87.11	9.90
687	513	0.97875	9.97	86.95	8.10
688	513	0.96225	10.19	86.63	8.90
689	512	0.95725	10.15	86.68	8.80
690	511	0.96375	9.83	87.12	10.30
691	510	0.99125	9.58	87.58	9.50
692	509	1.03975	9.41	88.08	9.20
693	508	1.0405	9.37	88.24	9.70
694	507	0.9935	9.46	88.08	9.70
695	506.5	0.946	9.57	87.90	9.30
696	505.5	0.898	9.71	87.69	8.30
697	505	0.90325	9.72	87.65	6.80
698	503	0.96175	9.59	87.78	8.50
699	501	0.992	9.49	87.84	9.50
700	500	0.994	9.42	87.81	13.80

701	498	0.965	9.46	87.81	9.30
702	497	0.905	9.59	87.81	8.90
703	495	0.82175	9.94	87.55	7.70
704	494	0.71525	10.51	87.03	8.60
705	492.5	0.6895	10.79	86.66	8.80
706	491	0.7445	10.79	86.45	9.30
707	490	0.76375	10.52	86.60	9.50
708	488	0.74725	9.97	87.09	17.40
709	487	0.7765	9.81	87.13	13.90
710	485.5	0.8515	10.04	86.71	12.70
711	484	0.918	9.98	86.83	15.00
712	483	0.976	9.65	87.50	15.70
713	482	1.0015	9.48	87.88	12.70
714	480	0.9945	9.46	87.97	13.80
715	479	0.967	9.53	87.92	14.40
716	478	0.919	9.69	87.74	13.90
717	476	0.90825	9.76	87.72	14.80
718	475	0.93475	9.75	87.86	17.70
719	474	0.9635	9.68	88.02	16.60
720	472	0.9945	9.58	88.20	17.10
721	471	0.96075	9.64	88.13	17.70
722	469	0.86225	9.87	87.82	19.10
723	467.5	0.844	9.78	87.87	17.00
724	466	0.906	9.35	88.29	16.60
725	464	0.95525	9.05	88.51	18.60
726	462	0.99175	8.87	88.53	19.00
727	460	0.9705	9.21	88.09	17.50
728	458	0.8915	10.04	87.18	19.10
729	456	0.88275	10.17	87.16	18.40
730	454	0.94425	9.57	88.02	16.30
731	452	0.972	9.42	88.32	15.50
732	451	0.966	9.72	88.07	16.40
733	449	0.971	9.63	88.19	17.90
734	448	0.987	9.16	88.69	17.00
735	446	0.9845	8.95	88.87	17.30
736	444	0.9635	8.98	88.75	17.00
737	443	0.95775	9.09	88.47	24.30
738	441	0.96725	9.29	88.05	16.20
739	439	0.9815	9.27	88.08	17.10

740	438	1.0005	9.01	88.58	18.40
741	436	1.032	8.89	88.60	20.20
742	434	1.076	8.90	88.15	22.00
743	432	1.06775	8.96	88.07	21.80
744	430	1.00725	9.06	88.38	19.10
745	428	1.00275	8.88	88.66	17.70
746	427	1.05425	8.40	88.93	20.50
747	426	1.0655	8.44	88.79	18.70
748	425	1.0365	9.01	88.24	20.40
749	424	1.0575	9.00	88.36	23.60
750	424	1.1285	8.43	89.14	19.80
751	423	1.157	8.21	89.45	24.70
752	423	1.143	8.34	89.29	21.00
753	422	1.1305	8.30	89.24	18.80
754	421.5	1.1195	8.09	89.30	19.50
755	421	1.125	7.86	89.43	20.20
756	420.5	1.147	7.62	89.64	18.70
757	420	1.13025	7.85	89.43	16.90
758	420	1.07475	8.55	88.82	18.50
759	419	1.066	8.79	88.62	18.60
760	419	1.104	8.58	88.83	21.60
761	418	1.119	8.58	88.69	18.70
762	418	1.111	8.79	88.21	21.00
763	417	1.10575	8.80	88.14	20.60
764	417	1.10325	8.62	88.49	25.90
765	416	1.09175	8.56	88.74	21.30
766	415	1.07125	8.63	88.89	22.60
767	415	1.063	8.64	88.97	19.50
768	414	1.067	8.59	89.00	20.30
769	414	1.0485	8.77	88.73	19.10
770	414	1.0075	9.18	88.18	17.70
771	413	0.9935	9.25	88.12	17.20
772	413	1.0065	8.97	88.57	20.90
773	412	1.0255	8.80	88.83	19.80
774	412	1.0505	8.75	88.89	19.00
775	412	1.05	9.02	88.54	18.20
776	411	1.024	9.63	87.79	17.60
777	411	1.021	9.74	87.63	18.70
778	410	1.041	9.36	88.06	19.20

779	410	1.049	9.27	88.23	17.70
780	409	1.045	9.48	88.15	18.50
781	409	1.07	9.19	88.57	21.70
782	408	1.124	8.40	89.50	18.20
783	408	1.1315	8.14	89.80	16.40
784	407.5	1.0925	8.41	89.47	19.30
785	407	1.07575	8.62	89.18	16.10
786	407	1.08125	8.78	88.93	15.30
787	406	1.09625	8.67	89.05	17.30
788	406	1.12075	8.29	89.53	17.70
789	405	1.1435	8.25	89.52	19.30
790	404.5	1.1645	8.54	89.01	16.90
791	404	1.096	8.83	88.69	17.30
792	404	0.938	9.13	88.56	20.00
793	403	0.9	9.01	88.82	19.70
794	403	0.982	8.48	89.47	15.20
795	402	0.9835	8.44	89.43	15.40
796	402	0.9045	8.89	88.70	15.30
797	401	0.87675	9.27	88.13	15.90
798	401	0.90025	9.60	87.72	14.60
799	400	0.962	9.36	87.92	14.60
800	400	1.062	8.57	88.73	14.50
801	399	1.071	8.46	88.86	14.20
802	399	0.989	9.03	88.32	14.60
803	398	0.93475	9.05	88.38	12.40
804	398	0.90825	8.51	89.06	11.90
805	397	0.8755	8.59	89.04	11.40
806	397	0.8365	9.29	88.33	10.80
807	396	0.82525	9.59	88.12	12.00
808	396	0.84175	9.49	88.40	12.00
809	395	0.85475	9.45	88.56	13.10
810	395	0.86425	9.48	88.61	13.20
811	394	0.928	9.20	88.83	13.90
812	394	1.046	8.61	89.22	14.70
813	393	1.09175	8.59	89.21	14.40
814	392	1.06525	9.13	88.79	14.60
815	391	0.99925	9.20	88.78	13.30
816	391	0.89375	8.78	89.17	12.80
817	390	0.912	8.55	89.41	13.40

818	389	1.054	8.52	89.49	12.30
819	388	1.05575	8.66	89.35	12.50
820	387	0.91725	8.98	89.00	13.80
821	386	0.8465	9.27	88.67	15.10
822	384.5	0.8435	9.53	88.34	13.80
823	384	0.869	9.47	88.40	12.60
824	383	0.923	9.09	88.85	14.10
825	381	0.93875	9.07	88.93	13.00
826	380	0.91625	9.41	88.65	11.30
827	379	0.9605	9.32	88.77	12.60
828	378	1.0715	8.82	89.29	14.00
829	377	1.1065	8.66	89.47	14.00
830	376	1.0655	8.83	89.31	14.50
831	375	1.04525	8.98	89.07	14.00
832	374	1.04575	9.08	88.73	14.80
833	373	1.0435	9.04	88.74	15.60
834	372	1.0385	8.85	89.11	17.60
835	371	1.0005	9.01	89.07	15.70
836	370	0.9295	9.52	88.62	16.50
837	369	0.91475	9.50	88.68	16.20
838	368	0.95625	8.97	89.24	14.60
839	367	1.0155	8.74	89.50	15.00
840	365	1.0925	8.82	89.45	17.40
841	364	1.10175	8.84	89.41	12.40
842	363	1.04325	8.78	89.37	15.10
843	361.5	1.0095	8.76	89.35	14.70
844	360	1.0005	8.80	89.34	14.70
845	359	1.0055	8.86	89.30	13.70
846	358	1.0245	8.93	89.20	12.50
847	357	1.04575	9.08	89.01	13.60
848	356	1.06925	9.29	88.70	12.30
849	356	1.07675	9.33	88.67	13.40
850	355	1.06825	9.21	88.92	12.90
851	354	1.06375	9.24	88.90	12.50
852	353.5	1.06325	9.42	88.63	14.10
853	353	1.07175	9.51	88.45	14.10
854	352	1.08925	9.51	88.34	14.00
855	352	1.08825	9.30	88.60	12.60
856	351	1.06875	8.87	89.21	12.20

857	350	1.04925	8.80	89.34	11.60
858	350	1.02975	9.08	88.98	11.80
859	349	1.0385	9.12	88.80	11.20
860	349	1.0755	8.92	88.79	10.30
861	348	1.0885	9.56	87.77	10.00
862	348	1.0775	11.03	85.74	10.50
863	347	1.0335	11.06	85.73	11.00
864	347	0.9565	9.64	87.75	10.60
865	346	0.96625	8.86	88.87	9.80
866	346	1.06275	8.71	89.07	9.50
867	345	1.07	8.74	89.11	9.80
868	344	0.988	8.96	88.97	9.20
869	344	0.949	8.92	89.00	9.90
870	343	0.953	8.64	89.19	10.00
871	343	0.97175	8.60	89.09	10.10
872	342	1.00525	8.83	88.71	11.10
873	342	1.03	8.61	88.82	12.20
874	341	1.046	7.96	89.41	16.00
875	341	1.04075	7.98	89.08	16.90
876	340	1.01425	8.69	87.84	17.70
877	340	1.0025	8.98	87.66	19.50
878	339	1.0055	8.86	88.55	15.30
879	338	0.97975	8.82	89.02	15.90
880	338	0.92525	8.87	89.06	15.50
881	337	0.8775	9.32	88.65	15.10
882	336	0.8365	10.20	87.78	14.90
883	336	0.89675	9.93	88.01	7.50
884	335	1.05825	8.52	89.32	15.30
885	334	1.14125	7.72	90.11	17.70
886	333	1.14575	7.54	90.39	17.40
887	332	1.091	7.44	90.53	16.50
888	331	0.977	7.43	90.55	14.60
889	330	0.90175	7.74	90.15	14.60
890	330	0.86525	8.36	89.34	14.70
891	329	0.87875	8.49	89.02	14.00
892	329	0.94225	8.14	89.18	13.00
893	328	0.958	8.19	89.16	12.00
894	327	0.926	8.66	88.97	10.50
895	327	0.94425	9.03	88.82	9.90

896	326	1.01275	9.31	88.69	10.50
897	326	1.095	9.12	88.88	11.00
898	325	1.191	8.47	89.39	9.50
899	325	1.135	8.38	89.52	11.00
900	324	0.927	8.85	89.29	9.10
901	324	0.8295	9.00	89.21	8.70
902	323	0.8425	8.84	89.27	9.30
903	323	0.88775	9.06	89.01	10.40
904	322	0.96525	9.66	88.40	12.50
905	321	1.0255	9.79	88.30	13.26
906	321	1.0685	9.44	88.69	14.01
907	320	1.09075	9.42	88.75	14.77
908	320	1.09225	9.72	88.49	15.52
909	319	1.10875	9.74	88.51	20.30
910	319	1.14025	9.46	88.80	23.50
911	318	1.14025	9.35	88.98	22.40
912	317	1.10875	9.42	89.02	18.10
913	317	1.08925	9.56	88.89	9.70
914	316	1.08175	9.77	88.59	10.70
915	316	1.10175	10.01	88.20	14.00
916	315	1.14925	10.28	87.73	13.60
917	315	1.14325	10.15	87.87	16.30
918	314	1.08375	9.62	88.61	15.80
919	313	1.06425	9.32	89.03	18.30
920	313	1.08475	9.26	89.13	14.60
921	312	1.04525	9.49	88.72	15.20
922	312	0.94575	10.01	87.81	15.90
923	311	0.9075	10.38	87.29	16.50
924	310	0.9305	10.61	87.17	16.10
925	310	0.9875	10.34	87.56	17.90
926	309	1.0785	9.56	88.47	20.00
927	309	1.065	9.23	88.79	15.50
928	308	0.947	9.34	88.54	14.20
929	307.5	0.914	9.53	88.29	15.50
930	307	0.966	9.79	88.04	14.60
931	306	0.93275	9.78	87.99	15.00
932	306	0.81425	9.49	88.14	16.10
933	305	0.82525	9.26	88.41	19.10
934	304	0.96575	9.07	88.78	17.60

935	304	1.072	8.83	89.23	20.40
936	303	1.144	8.54	89.78	18.40
937	303	1.1815	8.23	90.29	17.10
938	302	1.1845	7.91	90.77	17.70
939	301	1.15925	8.20	90.55	14.50
940	301	1.10575	9.09	89.65	12.40
941	300	1.07675	9.36	89.22	16.50
942	299	1.07225	8.99	89.27	18.30
943	298	1.11825	8.66	89.52	15.40
944	297	1.21475	8.38	89.98	14.80
945	296	1.2435	8.16	90.40	17.70
946	293	1.2045	7.99	90.76	17.00
947	290.5	1.1435	8.60	90.18	16.30
948	289	1.0605	9.99	88.65	16.30
949	286.5	1.03275	10.46	88.15	15.90
950	284	1.06025	10.01	88.68	17.50
951	282	1.095	9.62	89.09	15.90
952	280	1.137	9.31	89.37	15.70
953	278	1.16775	9.20	89.43	17.60
954	275	1.18725	9.29	89.28	17.50
955	273	1.19225	9.58	88.91	17.50
956	271	1.18275	10.08	88.32	19.60
957	268	1.1495	9.99	88.39	21.90
958	266	1.0925	9.31	89.11	19.50
959	263	1.05025	8.94	89.51	20.20
960	261	1.02275	8.87	89.59	17.50
961	258	1.0445	9.01	89.46	21.10
962	246	1.1155	9.36	89.12	23.40
963	234	1.1935	8.63	89.86	22.40
964	221	1.2785	6.81	91.70	25.70
965	209	1.17025	6.20	92.51	21.90
966	197	0.86875	6.79	92.32	17.10
967	186	0.8535	6.96	92.21	78.80
968	174	1.1245	6.70	92.20	11.60
969	162	1.29275	6.27	92.46	20.10
970	150	1.35825	5.68	93.00	40.70
971	138	1.38225	5.65	93.00	27.20
972	126	1.36475	6.17	92.46	47.20
973	114	1.33475	6.27	92.35	48.70

974	102	1.29225	5.95	92.66	32.30
975	90.5	1.20825	6.21	92.36	52.30
976	79	1.08275	7.05	91.43	1.50
977	67	1.0425	7.02	91.42	1.00
978	56	1.0875	6.11	92.31	1.40
979	44	1.14725	5.86	92.56	1.70
980	41	1.22175	6.26	92.18	30.20
981	39	1.2615	6.45	92.02	39.80
982	37	1.2665	6.43	92.08	34.10
983	35	1.30275	5.92	92.63	31.70
984	33	1.37025	4.91	93.67	34.30
985	32	1.33675	4.58	94.00	25.40
986	30	1.20225	4.93	93.62	25.90
987	29	1.18275	4.98	93.54	30.10
988	28	1.27825	4.74	93.78	23.10
989	26.5	1.36225	4.33	94.25	21.00
990	26	1.43475	3.76	94.97	22.80
991	25				23.00
992	24				22.40
993	23				22.80

Appendix C (Sedimentation rate data)

depth	min	max	median	wmean	Sed Rate
0	-73	-66.7	-69.4	-69.5	1.51515152
10	-69	-53.1	-62.8	-62.3	1.36986301
20	-64.3	-44.5	-55.5	-55.1	1.2987013
30	-58.6	-37	-47.8	-47.7	1.28205128
40	-51.5	-31	-40	-40.2	1.35135135
50	-42.6	-26.3	-32.6	-33	1.4084507
60	-29.8	-22.8	-25.5	-25.7	2.7027027
70	-26	-17.1	-21.8	-21.7	2.94117647
80	-23.2	-12.8	-18.4	-18.2	2.94117647
90	-20.3	-9.1	-15	-14.8	2.94117647
100	-16.9	-5.5	-11.6	-11.4	2.94117647
110	-12.9	-1.9	-8.2	-7.9	2.63157895
120	-7.5	2.5	-4.4	-3.8	0.9009009
130	-2.9	25.6	6.7	8.1	0.82644628
140	3.9	42.6	18.8	20.2	0.84745763
150	12.1	57.6	30.6	32	0.83333333
160	20.5	72.6	42.6	43.8	0.84745763
170	30	87.2	54.4	55.7	0.86206897
180	39.6	100.3	66	67.3	0.85470085
190	50.3	113.4	77.7	79.2	0.84033613
200	60.9	128	89.6	91	0.84033613
210	70.7	141.2	101.5	102.8	0.84033613
220	82.1	155.2	113.4	114.7	0.84745763
230	94.1	168.7	125.2	126.4	0.85470085
240	105.2	186.3	136.9	138.5	0.81967213
250	117.4	203.8	149.1	150.6	0.84033613
260	130.3	220	161	162.6	0.85470085
270	142.3	238.4	172.7	174.4	0.83333333
280	159.4	256.7	184.7	186.3	0.89285714
290	171.1	266.9	195.9	197.3	0.87719298
300	182.5	275.3	207.3	208.4	0.87719298
310	194.9	286	218.7	220.7	0.76335878
320	209.2	304.7	231.8	235.1	0.71428571
330	223.5	324.2	245.8	249.5	0.72992701
340	238	345.3	259.5	263.6	0.73529412
350	256.6	368.3	273.1	278.3	0.45248869
360	274.8	390.1	295.2	301.9	0.31152648

370	292.8	406.6	327.3	332.2	0.31746032
380	315.9	426.7	358.8	362	0.31545741
390	341.9	449.3	390.5	391.8	0.32786885
400	371.3	469.5	421	421	0.33112583
410	403.3	490.6	451.2	450.8	0.32258065
420	439.1	510.5	482.2	480.4	0.34482759
430	483.1	533.9	511.2	511.4	0.30959752
440	507.6	593.6	543.5	546.5	0.28901734
450	532.3	629.1	578.1	579.8	0.21367521
460	559.9	653.9	624.9	614.2	0.3125
470	586.6	713.9	656.9	652.4	0.27247956
480	612.6	761.6	693.6	691.3	0.25974026
490	642.1	804	732.1	730	0.25575448
500	672.5	840.9	771.2	768.1	0.25188917
510	700.4	875.7	810.9	806.5	0.24390244
520	731.7	910.9	851.9	845.2	0.24154589
530	762.5	951.4	893.3	887	0.16638935
540	823.7	1065	953.4	955.1	0.15797788
550	893.3	1142	1016.7	1020.2	0.15455951
560	959.3	1225.7	1081.4	1088.2	0.17094017
570	1019.2	1294	1139.9	1150	0.17211704
580	1067.5	1311.9	1198	1197.1	0.18450185
590	1117.9	1331.8	1252.2	1243.3	0.26246719
600	1166.9	1350.8	1290.3	1279.3	0.41666667
610	1212.4	1365.1	1314.3	1306.1	0.42372881
620	1256.4	1378.8	1337.9	1333.7	0.625
630	1284.3	1391.3	1353.9	1350.2	0.67567568
640	1308.6	1403.5	1368.7	1365.6	0.68965517
650	1328.9	1416.1	1383.2	1380.6	0.64935065
660	1350.7	1428.9	1398.6	1396	0.82644628
670	1367.2	1441.7	1410.7	1408.8	0.9009009
680	1382.7	1454.4	1421.8	1421	0.86206897
690	1398.4	1467.5	1433.4	1432.9	0.85470085
700	1414.9	1481.1	1445.1	1445	0.86956522
710	1424.1	1492.6	1456.6	1456.9	0.79365079
720	1434.7	1504.9	1469.2	1469	0.86956522
730	1445.2	1517.7	1480.7	1480.5	0.88495575
740	1456.2	1529.9	1492	1492.4	0.82644628
750	1467.2	1542.6	1504.1	1504.4	0.85470085

760	1479	1555.7	1515.8	1516.4	0.84033613
770	1490.9	1567.7	1527.7	1528.4	0.84745763
780	1503.5	1579.1	1539.5	1540.3	0.83333333
790	1515.9	1592.4	1551.5	1552.3	0.85470085
800	1528.7	1605	1563.2	1564.2	0.85470085
810	1541.8	1616.8	1574.9	1576.2	0.86956522
820	1555.2	1629.1	1586.4	1587.9	0.86956522
830	1567.2	1642.6	1597.9	1599.8	0.84745763
840	1580.5	1656.5	1609.7	1611.8	0.7518797
850	1593.5	1669.6	1623	1625.3	0.66225166
860	1607.6	1680.9	1638.1	1640.1	0.63694268
870	1621.8	1692.2	1653.8	1654.9	0.64935065
880	1636.5	1704.5	1669.2	1669.7	0.63291139
890	1651.7	1718.2	1685	1685.2	0.64935065
900	1665.4	1740.8	1700.4	1701.5	0.62111801
910	1679.3	1760.3	1716.5	1717.7	0.62111801
920	1693.2	1780.7	1732.6	1733.9	0.61349693
930	1708.9	1798.7	1748.9	1750.2	0.61728395
940	1724.4	1818.8	1765.1	1766.4	0.60606061
950	1739.2	1839.2	1781.6	1782.8	0.60240964
960	1755.3	1857.1	1798.2	1799	0.54945055
970	1769.8	1879.5	1816.4	1818.2	0.53402334

References

Abbott, M.B., Stafford, T.W., 1996. Radiocarbon geochemistry of modern and ancient Arctic lake systems, Baffin Island, Canada. Quaternary Research 45, 300-311.

Alexander, C.S., Eyton, R.J., 1973. Trend Surface Analysis of Flood Plain and Alluvial Terraces in Southern Illinois and Western Kentucky. GSA Bulletin 84, 1069-1074.

Alexander, C.S., Nunnally, N.R., 1972. Channel stability on the lower Ohio River. Annals of the Association of American Geographers 62, 411-417.

Alexander, C.S., Prior, J.C., 1971. Holocene sedimentation rates in overbank deposits in the Black Bottom of the lower Ohio River, southern Illinois. American Journal of Science 270, 361-372.

Andresen, J., Hilberg, S., Kunkel, K., Center, M.R.C., 2012. Historical climate and climate trends in the Midwestern USA. US National Climate Assessment Midwest Technical Input Report, 1-18.

Bird, B.W., Barr, R.C., Commerford, J., Gilhooly III, W.P., Wilson, J.J., Finney, B., McLauchlan, K., Monaghan, G.W., 2019. Late-Holocene floodplain development, land-use, and hydroclimate–flood relationships on the lower Ohio River, US. The Holocene, 0959683619865598.

Bird, B.W., Wilson, J.J., Gilhooly Iii, W.P., Steinman, B.A., Stamps, L., 2017. Midcontinental Native American population dynamics and late Holocene hydroclimate extremes. Scientific Reports 7, 41628.

Boës, X., Rydberg, J., Martinez-Cortizas, A., Bindler, R., Renberg, I., 2011. Evaluation of conservative lithogenic elements (Ti, Zr, Al, and Rb) to study anthropogenic element enrichments in lake sediments. Journal of Paleolimnology 46, 75-87.

Brock, F., Higham, T., Ditchfield, P., Ramsey, C.B., 2010. Current pretreatment methods for AMS radiocarbon dating at the Oxford Radiocarbon Accelerator Unit (ORAU). Radiocarbon 52, 103-112.

Coleman, J.S.M., Rogers, J.C., 2003. Ohio River Valley Winter Moisture Conditions Associated with the Pacific–North American Teleconnection Pattern. Journal of Climate 16, 969-981.

Counts, R.C., 2013. Late Quaternary Landscape Evolution and Tectonic Geomorphology of the Lower Ohio River Valley, USA. University of Cincinnati.

Counts, R.C., Murari, M.K., Owen, L.A., Mahan, S.A., Greenan, M., 2015. Late Quaternary chronostratigraphic framework of terraces and alluvium along the lower Ohio River, southwestern Indiana and western Kentucky, USA. Quaternary Science Reviews 110, 72-91.

Currie, L.A., 2004. The remarkable metrological history of radiocarbon dating [II]. Journal of Research of the National Institute of Standards and Technology 109, 185.

Cushing, E.J., Wright Jr, H., 1965. Hand-operated piston corers for lake sediments. Ecology 46, 380-384.

Graney, J., Halliday, A., Keeler, G., Nriagu, J., Robbins, J., Norton, S., 1995. Isotopic record of lead pollution in lake sediments from the northeastern United States. Geochimica et Cosmochimica Acta 59, 1715-1728.

Heiri, O., Lotter, A.F., Lemcke, G., 2001. Loss on ignition as a method for estimating organic and carbonate content in sediments: reproducibility and comparability of results. Journal of paleolimnology 25, 101-110.
IPCC., A., 2007. Intergovernmental panel on climate change. Climate change 2007: Synthesis report.
Knox, J.C., 2000. Sensitivity of modern and Holocene floods to climate change. Quaternary Science Reviews 19, 439-457.
Knox, J.C., 2006. Floodplain sedimentation in the Upper Mississippi Valley: Natural versus human accelerated. Geomorphology 79, 286-310.
Leathers, D.J., 1991. Relationships between 700 mb circulation variations and Great Plains Climate. Great Plains Research, 58-76.
Leathers, D.J., Yarnal, B., Palecki, M.A., 1991. The Pacific/North American teleconnection pattern and United States climate. Part I: Regional temperature and precipitation associations. Journal of Climate 4, 517-528.
Liu, Z., Yoshimura, K., Bowen, G.J., Buenning, N.H., Risi, C., Welker, J.M., Yuan, F., 2014a. Paired oxygen isotope records reveal modern North American atmospheric dynamics during the Holocene. Nature communications 5, 3701.
Liu, Z., Yoshmura, K., Bowen, G.J., Welker, J.M., 2014b. Pacific–North American teleconnection controls on precipitation isotopes (δ18O) across the contiguous United States and adjacent regions: A GCM-based analysis. Journal of Climate 27, 1046-1061.
Livingstone, D., 1955. A lightweight piston sampler for lake deposits. Ecology 36, 137-139.
Lotter, A.F., Merkt, J., Sturm, M., 1997. Differential sedimentation versus coring artifacts: a comparison of two widely used piston-coring methods. Journal of Paleolimnology 18, 75-85.
Mallakpour, I., Villarini, G., 2015. The changing nature of flooding across the central United States. Nature Climate Change 5, 250-254.
Mann, M. E., Zhang, Z., Rutherford, S., Bradley, R. S., Hughes, M. K., Shindell, D., ... & Ni, F. (2009). Global signatures and dynamical origins of the Little Ice Age and Medieval Climate Anomaly. Science, 326(5957), 1256-1260.
Melillo, J.M., 2014. Climate change impacts in the United States: the third national climate assessment. Government Printing Office.
Minasny, B., Malone, B.P., McBratney, A.B., Angers, D.A., Arrouays, D., Chambers, A., Chaplot, V., Chen, Z.-S., Cheng, K., Das, B.S., Field, D.J., Gimona, A., Hedley, C.B., Hong, S.Y., Mandal, B., Marchant, B.P., Martin, M., McConkey, B.G., Mulder, V.L., O'Rourke, S., Richer-de-Forges, A.C., Odeh, I., Padarian, J., Paustian, K., Pan, G., Poggio, L., Savin, I., Stolbovoy, V., Stockmann, U., Sulaeman, Y., Tsui, C.-C., Vågen, T.-G., van Wesemael, B., Winowiecki, L., 2017. Soil carbon 4 per mille. Geoderma 292, 59-86.
Parnell, A. (2016). Bchron: Radiocarbon dating, age-depth modelling, relative sea level rate estimation, and non-parametric phase modelling. R package version 4.1. 1; 2015.
Nanba, K., Iida, T., Fukuyo, Y., Matsuoka, K., 1998. A handy piston core sampler for sediments in shallow water. Fisheries science 64, 985-986.

Nesje, A., 1992. A piston corer for lacustrine and marine sediments. Arctic and alpine research 24, 257-259.
Parnell, A., Parnell, M.A., 2018. Package 'Bchron'.
Rasmussen, S.O., Vinther, B.M., Clausen, H.B., Andersen, K.K., 2007. Early Holocene climate oscillations recorded in three Greenland ice cores. Quaternary Science Reviews 26, 1907-1914.
Ray, L.L., 1974. Geomorphology and Quaternary geology of the glaciated Ohio River valley; a reconnaissance study, Professional Paper, - ed.
Reimer, P.J., Bard, E., Bayliss, A., Beck, J.W., Blackwell, P.G., Ramsey, C.B., Buck, C.E., Cheng, H., Edwards, R.L., Friedrich, M., 2013. IntCal13 and Marine13 radiocarbon age calibration curves 0–50,000 years cal BP. Radiocarbon 55, 1869-1887.
Ropelewski, C. F., & Halpert, M. S. (1986). North American precipitation and temperature patterns associated with the El Niño/Southern Oscillation (ENSO). Monthly Weather Review, 114(12), 2352-2362.
Smith, A.B., Katz, R.W., 2013. US billion-dollar weather and climate disasters: data sources, trends, accuracy and biases. Natural hazards 67, 387-410.
Stafford, C.R., 2004. Modeling soil-geomorphic associations and Archaic stratigraphic sequences in the lower Ohio River valley. Journal of Archaeological Science 31, 1053-1067.
Stafford, C.R., Creasman, S.D., 2002. The hidden record: Late Holocene landscapes and settlement archaeology in the Lower Ohio River Valley. Geoarchaeology 17, 117-140.
Vallentyne, J., 1955. A modification of the Livingstone piston sampler for lake deposits. Ecology 36, 139-141.
Vogel, J.S., Turteltaub, K.W., Finkel, R., Nelson, D.E., 1995. Accelerator mass spectrometry. Analytical chemistry 67, 353A-359A.
Wright Jr., H.E., Mann, D.H., Glaser, P.H., 1984. Piston Corers for Peat and Lake Sediments. Ecology 65, 657-659.
Wuebbles, D.J., Hayhoe, K., 2004. Climate Change Projections for the United States Midwest. Mitigation and Adaptation Strategies for Global Change 9, 335-363.

Curriculum Vitae

Harvie Jason Pollard

Education

- BS. Ball State University (December 2017)
- MS. Indiana University, earned at Indiana University-Purdue University Indianapolis (August 2020)

Honors, Awards, Fellowships Research and Training Experience

- GSA research grant

Professional Experience

- Intern- Element Technologies
- Intern- BCA Environmental Consultants
- United States Geological Survey

Conferences Attended

- North Central GSA: Presentation
- National GSA: Presentation
- Indiana Academy of Science: Poster

Publications

Broxton W. Bird, Jeremy J. Wilson, Jaime Escobar, George D. Kamenov, Harvie J. Pollard, G. William Monaghn; Pre-Columbian lead pollution from Native American galena processing and land use in the midcontinental United States. *Geology* ; 47 (12): 1193–1197.